FEBRUARY 2, 1953

NEWS ISSUE

Electrical World

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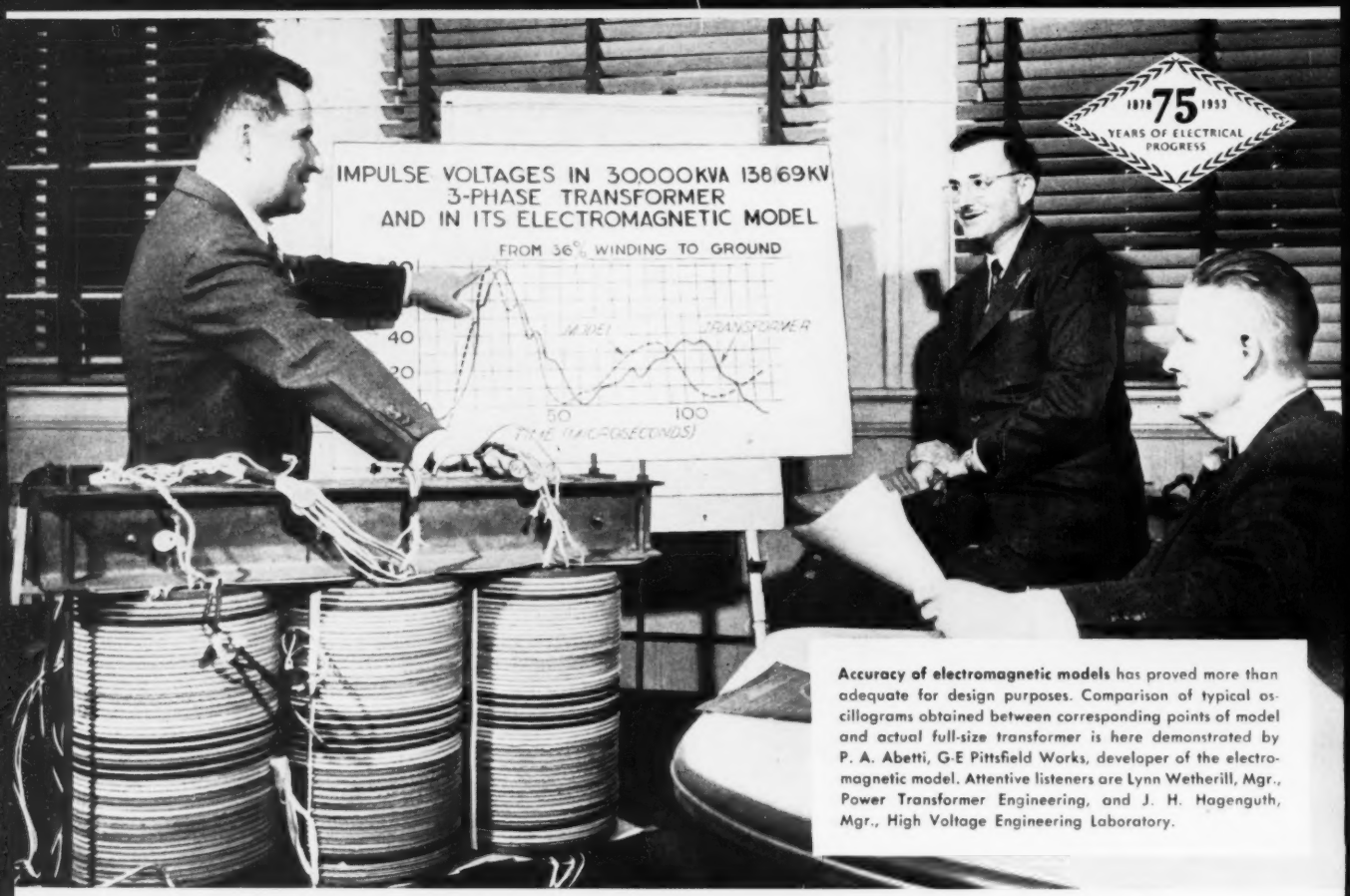
A McGRAW-HILL PUBLICATION

Hot Food in a Cold Emergency

Pennsylvania Power & Light Feeds Its Crews in the Field . . . See Page 16

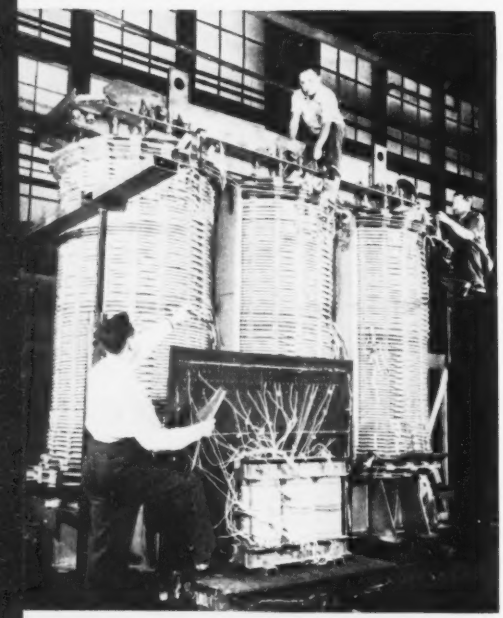
Your Long-Term Planning Program . . . Page 32

More Inflation in 1953? . . . Page 50



Accuracy of electromagnetic models has proved more than adequate for design purposes. Comparison of typical oscillograms obtained between corresponding points of model and actual full-size transformer is here demonstrated by P. A. Abetti, G-E Pittsfield Works, developer of the electromagnetic model. Attentive listeners are Lynn Wetherill, Mgr., Power Transformer Engineering, and J. H. Hagenguth, Mgr., High Voltage Engineering Laboratory.

New G-E "Model Testing" technique promises SMALLER, MORE RELIABLE POWER TRANSFORMERS



Shown for comparison with 33,333-kva core-and-coils, model is only 1/6 the size, 1/216 the weight and may be built in only 1/10 the time. Here P. A. Abetti checks connections in final assembly.

Major G-E development paves way for improved winding structures, reductions in weight

As the demand grows for power transformers of higher and higher voltage and kva ratings, the problem of predicting transient voltages that may occur in the windings becomes increasingly complex.

Accurate knowledge of these voltages—in the design stage—is a vital factor in determining the most effective use of insulation. It has also a bearing on transformer design, which may be reflected in such advantages as reduced size, weight and cost.

Perfected over a three year period, the new G-E development of testing with electromagnetic models offers the first simple, practical method of obtaining complete and accurate knowledge of transient voltages for any power transformer in advance of actual construction.

A small fraction of the size and weight of equivalent full-size transformers, these models not only provide a rapid, precise method of testing established designs, but also open opportunities for the development of new winding structures, leading to improved reliability.

A new tool has been created for accelerating transformer progress. Its successful application is already being reflected in improved G-E power transformers. The knowledge now being gained promises even greater developments for tomorrow. General Electric Company, Schenectady 5, New York. 301-226

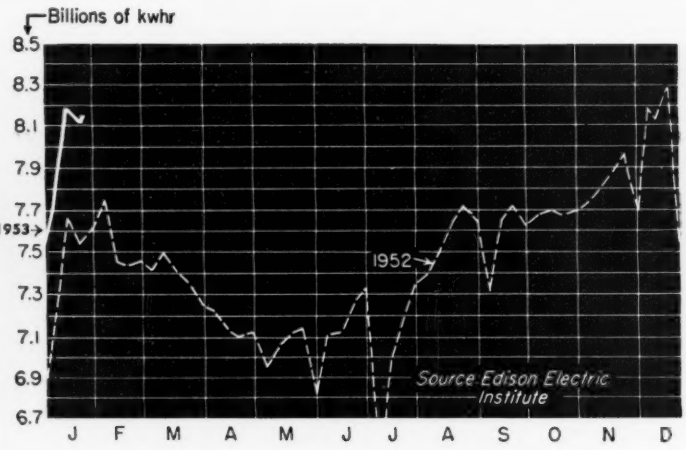
MORE POWER TO AMERICA

GENERAL ELECTRIC

VOLUME 139, NO. 5

February 2, 1953

Electrical World



Output Week Ended Jan. 24—8,144,074,000 Kwhr

Per Cent Change From Previous Year

	Total US	New Eng.	Mid. Atlan.	Cent. Ind.	West Cent.	South-east	South Cent.	Rocky Mount.	Pacific NW	SW
Jan. 24	+6.9	+8.1	+5.6	+8.8	+7.5	+10.6	+7.4	+8.9	—9.1	+7.1
Jan. 17	+7.7	+10.0	+6.2	+10.2	+10.4	+15.6	+6.1	+4.0	—14.8	+4.9
Jan. 10	+7.1	+10.0	+6.0	+10.2	+9.8	+12.0	+6.9	+3.0	—12.2	+3.5

Electric Power Statistics

		Latest Month	Preceding Month	Year Ago
Peak Load (Million Kw)	Nov.	72.8*	71.1	68.7
Capacity (Million Kw)	Nov.	80.91	79.70	75.18
Production (Billion Kwhr)	Nov.	33.75	34.82	32.10
Hydro		6.52	7.02	8.08
Fuel		27.23	27.80	24.02
Fuel Consumption				
Coal (Million Tons)	Nov.	9.93	9.92	9.74
Oil (Million Barrels)		7.75	7.16	5.96
Gas (Billion Cu Ft)		69.94	83.08	53.15
Sales (Billion Kwhr)	Nov.	30.08	30.15	27.92
Residential		8.16	7.72	7.37
Commercial		5.01	5.09	4.68
Industrial		14.91	15.16	13.89
Other		2.01	2.17	1.97
Net Income Class A & B Companies ($ Million)	Nov.	94.18	64.86	69.92
Estimated Dec. 52 Peak (Million Kw)	Oct.	79.1	79.7	80.6
Kwhr per Residential Customer (12 Month Average)	Oct.	2,143	2,131	1,972
Revenue per Kwhr Residential Service (12 Month Average)	Oct.	2.77¢	2.77¢	2.83¢
Canadian Production (Billion Kwhr)	Nov.	5.22	5.42	4.94

Business Statistics

FRB Industrial Production Index†††	Dec.	233*	230	217
Gross National Product Annual Rate ($ Billion)	3rd Qtr.	343.4	342.6	337.1
E. W. 5 Industry Production Index	Dec.	128.5*	128.5	124.6
ENR Construction Cost Index††	Dec.	123.2	123.4	114.8
BLS Consumer's Price Index	Oct.	190.9	190.8	187.4
NEMA Insulation Materials Sales Index†	Nov.	579	599	511
NEMA Electric Appliance Sales Index†	Nov.	251	260	269
NEMA Household Refrig. Sales Index†	Nov.	152	122	87

* Preliminary. † 1936=100 †† 1949=100 ††† Unadjusted

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NO. 9 IN A SERIES

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HERE'S OUR ANSWER:

We understand why you are concerned. The significance of your question is borne out in a recent utility survey of construction delay factors which showed that "failure of suppliers to meet equipment delivery promises was *number one* on the list."

Look at the Pinco record. Check with our customers. They will tell you as they have us that our delivery promises are "the most reliable in the industry." Careful scheduling has made this fine record possible. And when we accept your order, we feel that we are part of your construction department. Our responsibility is to see that our material is "right on the job" . . . on time . . . when you need it!

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THE ELECTRICAL WEEK

The Issue's News Highlights—Rural Electrification Administration loses some of its autonomy in reorganization of Agriculture Department by its new secretary, Ezra Taft Benson. Republicans are moving slowly in taking over control of other agencies dealing with power.

Power projects which will serve atomic energy installations will get special priority ratings in the procurement of materials.

One of the water wheels driving a 30,000-kw generator at Pacific G&E's Bucks Creek hydro plant flew apart Jan. 19 causing damage estimated at $250,000.

Off the Washington Wire—A federal district court has issued a temporary injunction restraining Sepa from further construction of the 41-mile transmission line from the Clark Hill project to Greenwood, S. C. . . . Interior Secretary Douglas McKay makes his first appointment—Raymond Davis, an insurance executive, to be an assistant to the secretary.

Major General Samuel D. Sturgis, Jr. has taken over as Army Chief of Engineers. He was appointed to the post Dec. 1 but had to complete European duties before taking over . . . Field office of Army Corps of Engineers recommends flood control and power projects in the Warrior River Basin in Alabama. Sites for two of the reservoir projects recommended by the field office conflict with permit previously issued by FPC to Warrior River Electric Cooperative Association in Alabama.

Hearing has been set for Feb. 24 before FPC on an application by Big Horn Canyon Irrigation & Power for a preliminary permit covering a proposed hydroelectric project on the Big Horn River in Montana and Wyoming. Bureau of Reclamation has expressed opposition to issuance of the permit.

New merger proposal has been made by Washington Water Power to Puget Sound Power & Light. WWP now offers Puget Sound stockholders the choice of taking $27 a share for each share they own or accepting WWP stock on a share-for-share basis. The offer made by WWP on Oct. 9 was for a share-for-share exchange or one share of WWP stock and $27.50 for each two shares of Puget Sound stock.

Financial—Stockholders of American Gas & Electric have approved a 2-for-1 split of common stock to be effective Jan. 29. Instead of having 10,041,081 shares of $10 par common outstanding, the company will have 20,082,162 shares of $5 par common . . . Consolidated Edison of New York increases quarterly dividend from 50¢ to 55¢ to stock of record Feb. 13. Company's net income for 1952 was $45,115,034 compared with $39,211,827 for 1951.

At NRECA Meeting—Continuation of building programs, improvement in cooperative management, preservation of the preference clause, and support of the new Administration must be the immediate objectives of rural electric co-ops, Executive Manager Clyde T. Ellis declared at NRECA's annual meeting last week in San Francisco.

Promoting Better Wiring—Electrical Association of Detroit is getting started on a plan to promote competent attention to wiring troubles in Detroit homes. Now being tried out with cooperation of Detroit Edison, the plan makes use of a card left by utility trouble men with the customer. Wiring troubles are indicated on the card. Householder is advised to get in touch with a neighborhood contractor or, if he does not know one, to call the Electrical Association for the name of a contractor.

From West South Central—Arkansas-Missouri Power is asking Arkansas PSC approval to buy all the common stock of Associated Natural Gas Co for $886,902 . . . Yorktown, Tex., City Council has granted Central P&L a new 30-year franchise.

Manitoba legislature has passed legislation enabling the province to take over the electrical assets of Winnipeg Electrical Co and combine them with its own facilities.

Stockholders of Iowa Electric Co and Iowa Electric Light & Power Co will meet on April 7 to approve a merger of the two companies.

From New England—Public Service of New Hampshire will make a survey of street lighting facilities in Newport, N. H., in response to requests of citizens desiring additional installations and to cooperate in a municipal program for accident and crime prevention.

Creation of a PUC in Iowa should be taken under consideration, Gov William S. Beardsley told the legislature in his inaugural address.

Litigation—Kentucky PSC has set Feb. 18 for the next hearing in the East Kentucky Rural Electric Cooperative's fight to build 597 miles of lines in 84 Kentucky counties. Kentucky Utilities and Louisville G&E contend the proposed lines will duplicate existing facilities serving rural areas.

British government is designing an atomic energy plant "capable of producing substantial amounts of electricity," Minister of Supply Duncan Sandys has told the House of Commons. He said "Design and development of a full scale breeder reactor" are under way at Harwell, and the government is looking for a site for the nuclear power plant.

Regulatory Commissions—George R. Jones, member of the Idaho PUC, is elected president of the commission . . . William B. Vicars is appointed to the Illinois Commerce Commission . . . Warren Buchanan is named chairman of the Indiana PSC, succeeding Hugh W. Abbett, resigned . . . David M. Brackman is designated chairman of Massachusetts Department of Public Utilities.

Congratulations—William H. Wagner is elected vice president of Wisconsin Electric Power Co . . . J. A. Page is appointed director and vice president of Southern Canada Power Co.

(*Continued on page* 10)

Romeo E. Short will coordinate the policies of Rural Electrification Administration and other credit agencies under Agriculture Secretary's shakeup of department as . . .

GOP Makes Its First Power Moves

Republicans, still putting together their administrative team, are moving slowly in taking control of the federal agencies dealing with electric power.

Except for the Agriculture Department, where a topside reorganization stands to clip Rural Electrification Administration of some of its autonomy, old time government employees concentrated on routine tasks. Everywhere workers kept a trained eye on the front office watching for clues to their own future employment and new government policies.

Major Developments . . . During the first week of the Eisenhower Administration there were these developments:

- In an organization overhaul at the Department of Agriculture, REA moved one step down the ladder. Romeo E. Short, assistant to agriculture Secretary Ezra Taft Benson, will coordinate the policies of REA and other credit agencies in the department.
- At the Interior Department, new Secretary Douglas McKay said changes would be made gradually, and personnel replacements would be only at the top. He told employees at his first staff meeting not to be "jittery" about their jobs. He also sent nominations for undersecretary and assistant secretaries to the White House.
- There was no visible slowdown at either the Federal Power Commission or the Securities and Exchange Commission, although both these agencies awaited nomination of new commissioners and designation of chairman.
- Tennessee Valley Authority and Army Corps of Engineers looked for general policy changes to come in time, but saw few personnel changes because of the nature of the agencies.

Shakeup at Agriculture . . . In the shakeup at Agriculture, some 20 separate agencies and bureaus were re-grouped into four divisions for administrative purposes. Terming his department a "huge bureaucracy," Secretary Benson said, "what we intend is a gradual streamlining of the department's service in the interest of economy and efficiency."

REA, under the new setup, is grouped with Farmers Home Administration and Farm Credit Administration to form an "agriculture credit group" under Short. There is talk that Short may become an assistant secretary if additional positions of this level are authorized by Congress.

Immediate effect of the reorganization is to put REA one step further from the Secretary. In the past, the agency head has reported directly to the Secretary of Agriculture. It is almost certain that REA will lose some of its autonomy under the new administration. In the past, administrator Claude Wickard has had practically a free hand in establishing REA policies. Higher-ups in the department were consulted only when the agency had to dip into its contingency fund to make loans in excess of its regular appropriations.

Authority Not Defined . . . Extent of the authority which Short will exercise over REA was not spelled out in the original announcement. In any event, it will depend somewhat upon his character and personality, as well as his knowledge of the rural electric co-op program.

A vice president of the American Farm Bureau Federation and a farmer himself, Short is reported to have firm convictions and the sort of personality to put his convictions into practice. Short is a resident of Brinkley, Ark., where he operates a diversified farm growing cotton, livestock, and rice.

He served ten years as a member of the board of directors of the St. Louis District Farm Credit Administration, and helped found the Arkansas Rice Growers Cooperative Association.

Considered Conservative . . . Although he has been most active in marketing cooperatives, Short also has a general

knowledge of rural electric cooperatives. Electric co-op leaders in Arkansas describe him as a conservative, who both makes and follows the policy of the American Farm Bureau Federation.

He headed the AFBF resolutions committee which wrote last December:

"Existing power companies are in a position to generate and transmit additional power most economically in most instances . . . (but) . . . we will oppose any efforts to change the present law, which makes it possible for the Rural Electrification Administration to finance the generation and transmission facilities farmers need."

This AFBF committee also wrote:

"It should be the policy of the federal government to sell existing federally owned generating plants and transmission lines to private enterprises and local public institutions."

Wickard's Position . . . Although REA Administrator Wickard's term does not expire until 1955, it is no secret that his position can be rendered ineffective through reorganization of the department. The initial overhaul did not appear to accomplish this, but REA officials were not willing nor able to say how much it will effect agency policies.

The Rural Electrification Act emphasizes the agency shall be conducted in a non-political manner, both as to personnel and loan policy. It is certain that Democrats in Congress will yell loudly if REA is relegated to a minor position within the department.

Priorities for Power Projects

NPA authorizes special ratings for plants which will supply electricity to meet needs of atomic energy installations

Special priority ratings are being assigned to a number of electric power projects which will serve atomic energy installations.

This marks the first instance during the present controls program that power projects have been granted the "E" rating, comparable to the priority assigned direct military and atomic energy programs.

On a broader scale, National Production Authority was also authorized to issue directives to producers of materials, such as steel mills, for materials to be used in the whole power program. Fabricators and manufacturers may be directed to use these materials for the power program.

Mobilization officials must still interpret the order pertaining to the overall program. Defense Electric Power Administration had originally asked for the special priority rating for all power expansion.

Implications . . . Decision, which was carried in a letter from former Defense Mobilizer Henry H. Fowler to Depa and NPA, appears to:

- Extend the special priority to selected projects which will supply firm, interim and back-up power in support of the Atomic Energy Commission's expansion program.
- Authorize or order that directives be issued to support other parts of the expansion program.

In a joint announcement last week Depa and NPA said the priority projects will be determined by an interagency committee made up of representatives of the agencies and AEC.

Depa said decisions will be made from information already available to the government or which will be specifically requested from the companies or agencies building the projects. Utilities do not have to enter a request to obtain the rating. It is estimated unofficially the rating will be extended to approximately 56 generating units.

Water Wheel Flies Apart at Pacific G&E Station

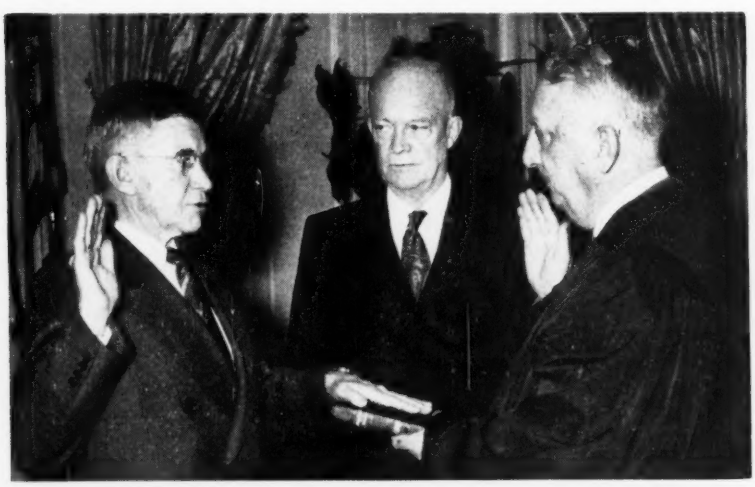
One of two water wheels driving a 30,000-kw generator at Pacific Gas & Electric Co's Bucks Creek hydroelectric station on the Feather River flew apart on Jan. 19 causing damage estimated at $250,000. Disk which holds the 19 buckets all but demolished the steel housing as it broke and flew off.

One piece with five buckets, weighing about 2½ tons, flew through the station roof and landed on a hill 70 ft away. Another, with three buckets, hit the crane rail near the roof and fell into a storage area holding bushings and other material. A third, with ten buckets, went into the pit below the wheel location. The 19th bucket has not been found.

Cause of the accident is unknown but one piece of the disk shows signs of a crack and internal rusting which went undetected since the installation was made in 1928. Theory is that one bucket let go and the resulting unbalance set up vibration which destroyed the wheel.

The 30,000-kw unit is driven by two horizontal-shaft 450-rpm water wheels. Pending an investigation of the generator and other wheel for damage, unit may be out of service for up to a year, company estimates.

A second 30,000-kw generator at Bucks Creek was not affected by the damage and continues in service. This hydro plant has a static head of 2,561.6 ft, highest in the country.



McKay Sworn in as Interior Head

With President Dwight D. Eisenhower looking on, Douglas McKay, ex-governor of Oregon, takes the oath from Chief Justice Fred M. Vinson officially making him Secretary of Interior.

H. P. SEDWICK . . .

WILLIS GALE . . .

JOHN EVERS . . .

. . . are the newly elected officers who will function as

Commonwealth Edison's Triumvirate

In line with plans for the formal merger of Public Service Co of Northern Illinois into Commonwealth Edison Co, the boards of directors of the two utilities have announced changes in the top executive personnel, effective March 1.

Willis Gale, president of both firms, will become chairman and chief executive officer. Succeeding him as president of Commonwealth will be John W. Evers, who now is executive vice president of Commonwealth. And H. P. Sedwick, executive vice president of Public Services, will take over as president of that company. When the merger of the two companies takes place, Sedwick will be president of the Public Service Division.

Stockholder Meeting March 17 . . . Special stockholder meetings of Commonwealth and Public Service have been called for March 17 to vote on the merger proposal. The plan has already received the approval of the Illinois Commerce Commission. The merger is the final step of the program of simplification and integration which has been going on during the past 15 years. More than 99.87% of Public Service stock is owned by Commonwealth Edison.

At the meeting Edison stockholders will be asked to elect present directors of Public Service as members of the Commonwealth Edison board to take office when the merger goes into effect.

Gale replaces Charles Y. Freeman as chairman and chief executive officer. Freeman, who was elected chairman of the executive committees of Commonwealth Edison and Public Service, will continue to take an active part in the management of the companies and in the formulation of their policies. He became chairman of the companies in 1939 after previously serving as general counsel.

Became VP in '37 . . . The new chief officer of the two Illinois utilities has been handling their affairs in an executive capacity since 1937. In that year Gale was elected vice president of Commonwealth Edison and Public Service and he was placed in charge of finance. Two years later his title was changed to chairman of the finance committee of the companies. In 1951 he was elected president.

Before coming to Commonwealth Edison and Public Service, Gale served with North American Light & Power Co. Starting in 1928 as an accountant, he later became assistant treasurer and vice president. A graduate of Northwestern University, Gale at one time served on the teaching staff as an instructor in the Department of Economics. He is a member of the Illinois bar and is also a certified public accountant.

Entire Career with Edison . . . Evers has spent his entire business career with Commonwealth Edison. He became secretary of the utility in 1924 and was placed in charge of the purchasing and stores and transportation departments. He was elevated to vice president in charge of purchasing in 1943 and in 1951 was elected executive vice president of the company.

Joining Public Service in 1913 as an engineer, Sedwick served in a number of capacities including general manager before being named vice president in 1941. He became executive vice president in 1951. Sedwick is a past president of the Western Society of Engineers.

Magazine to Conduct Lighting Competition

A lighting contest for electrical contractors will be conducted by Electrical Construction and Maintenance, a McGraw-Hill publication. Prizes totaling more than $1,000 will be awarded for the best lighting installations initiated and completed by electrical contractors between Jan. 1, 1952 and Aug. 1, 1953.

First prizes of $100, second prizes of $50, and third prizes of $25 will be presented in each of the following classifications: stores, schools and offices, industrial, residential, floodlighting, and miscellaneous.

Electrical Construction and Maintenance will publish a special Lighting Competition Issue in the fall featuring the six first-prize winners of the contest.

Water Policy Action Proposed

Five recommendations submitted by Truman the day before he left office are now before the GOP-controlled Congress

New Republican Congress has before it recommendations for five general changes in water resources development policy.

Although the proposals were submitted by the Truman Administration, several appear to be in line with Republican thinking on waterway development. Proposals include sweeping reorganization of planning and construction bodies, wider participation by state and local groups, improvement in selection of new projects, careful study of financing, and widest social benefits from projects selected.

Truman Not Specific . . . The recommendations were sent to Congress the day before Truman left office in lieu of specific legislative proposals, which federal agencies have been working on for more than two years. Specific proposals, still incompleted, are now available for study by the Eisenhower Administration.

Both the Truman water resources message and the legislative suggestions are an outgrowth of the studies carried on by the President's Water Resources Policy Commission, which completed its work early in 1951. The commission last year made public its own legislative recommendations, but they were not adopted by the Truman Administration (EW, Feb. 25, 1952, p 69).

Proposals Listed . . . The Truman message carried these proposals, and asked that "serious attention" be given them:

1. "We should organize more efficient means of regional river basin planning and management in those parts of our country which need improvement. The type of organization need not be the same for all regions. . . .

2. "We should increase our efforts to see that every affected state, and every affected community in a region is given opportunity to share in the responsibility for basin development . . . The assumption of greater state and community financial responsibility is one of the ways we can avoid irresponsible special pressure for undesirable projects.

3. "We should strengthen and simplify our federal procedures for selection among the great volume of project proposals which come to the executive office and Congress each year.

4. "We must find a better answer to the question: 'Who pays and how much?' . . . The cost of resource projects should be paid more by those who benefit directly from them.

5. "We should see that our development procedure is so designed that it can provide the most in farms, and jobs, and opportunity for business enterprise for every dollar spent."

Iowa Association Hears Progress Report on Grid

Construction of a 161-kv transmission grid in Iowa is progressing satisfactorily, members of Iowa Utility Association were told at their recent annual meeting at Des Moines.

Sutherland C. Dows, president of Iowa Electric Light & Power Co, reported that work on one leg of the $38-million grid has already started. This section runs from Sioux City to Fort Dodge. Materials and rights of way have been secured for lines from Clarinda to Council Bluffs and from Fort Dodge to Mason City.

Iowa Public Service Co is building the Sioux City-Fort Dodge leg; People's Gas & Electric Co will construct the Fort Dodge-Mason City section; Iowa Power & Light Co will build leg connecting with the station it has under construction at Council Bluffs.

The Iowa association reaffirmed its position regarding the proposed utilities commission for Iowa. The group will not oppose transfer of regulatory powers from local council to a state body. However, the association feels that if regulation is applied to investor-owned utilities it should also be applied to all other suppliers, particularly in the fields of safety, uniform accounting, and standards of services.

Edward Ruisch, assistant to the president of Iowa Public Service, was elected president of the association succeeding Dows.

12 FPC Licenses in '52

Twelve licenses for major hydroelectric projects with a total capacity of 1,405,000 kw were issued last year by the Federal Power Commission, according to Chairman Thomas Buchanan. This compares with 25 licenses for 816,000 kw hydro capacity in 1951.

Falls Makes Roaring Comeback

The off-again, on-again Snoqualmie Falls is on again. Located in the state of Washington, Snoqualmie had been reduced to a trickle for a time because of abnormally low rain and snow fall during 1952 (EW, Jan. 12, p 61). Now the heavens have opened, bringing it back to peak potential, and watering the eyes of grateful Puget Sound Power & Light Co officials who operate a plant at the falls.

THE ELECTRICAL WEEK

CONTINUED

Latest proposal by Washington Water Power to purchase Puget Sound P&L (p 5) represents an "improvement over earlier terms and will be given full consideration," Frank McLaughlin, Puget president, has revealed.

Mobilizers are expected to approve entrance of the Wheland Co into the aluminum production field. Proposed 50,000 ton per year aluminum smelter would be in the Chattanooga, Tenn., area and draw power from TVA . . . Pennsylvania PUC has set hearings on Feb. 19-20 on Scranton Electric's proposal to raise rates $41.2 million a year . . . Washington Water Power has received PSC approval to make a temporary 6.52% general rate increase to bring in another $748,000 annually. This will provide the company with a 5.85% return on its investment, Jerome K. Kuykendall, chairman of the PSC, said.

Both the Corps of Engineers and AEC will oppose construction of a $412-million dam across the Columbia River at Priest Rapids by the Grant County PUD of Ephrata, Wash.

Washington state legislature gets bill which would kill the present law allowing public agencies to take over private power properties by condemnation by requiring prior approval from the PSC. The bill admittedly is aimed at halting the Chelan PUD's proposed acquisition of Washington Water Power's Chelan Falls dam.

IN THE INDUSTRY

People are funny. Jim Fairman didn't actually use those words but that was the insinuation one can easily draw from one of his recent speeches. Fairman, who was deputy administrator of the Defense Electric Power Administration for three months and administrator for 16 more, was talking on his experiences at the nation's power mobilization or claimant agency. Beneath the humor of his talk one could detect a bit of bitterness and considerable regret that the problems, complexities, and importance of the industry are not better understood.

"As might be expected," he said, "every claimant agency looked upon its field as an important, if not the most important, factor in the success of the mobilization program. Certainly as to electric power I knew that the whole economic structure depended upon an adequate power supply at all times and in all places, but I found a lot of other people didn't know that.

"Hence it was going to be necessary to educate them in order that the power expansion program could obtain its appropriate share of critical materials to insure that the rapidly growing demands for more power would be met in time. I am going to give you the gist of that education because I have found that lack of understanding of the role of electric power in the nation's economy is not confined to official circles. I have even met some engineers whose understanding left something to be desired."

Here are some of the factors that made Fairman an educator:

1. Statistics and forecasts were not convincing to those who utilmately had to pass on Depa's claims. The "superiors" just wouldn't believe that the assumptions made were valid. Everybody would admit that power requirements had doubled in the preceding ten years. Many doubted this trend would continue. This trend would have required the installation of 14 million kw through 1953. But the utilities had a program calling for 17 million kw during this period. This was boosted to 27 million kw. Then an independent group of consultants boosted this another 5 million kw.

2. Because the power expansion program had been cut back during World War II without harm, some people thought it could be done again. Fairman had to point out that in 1941 reserves were close to 20%. In 1950 they were 7%. Besides during World War II production of civilian goods was curtailed. The mobilization program was to provide both "guns and butter."

3. Some experts thought that civilian use should be curtailed. Fairman had to point out that in an all-out shooting war people will make real sacrifices but that people in the Northwest could hardly be expected to cut power use so that more aluminum could be made so that non-military users in other areas would have an ample supply to protect small business and maintain employment.

4. A top mobilizer stated that he couldn't see why generating capacity should be increased 40% in three years when gross national product would go up only 20%. He had to be informed that since 1922 power consumption had been going up 3.6 times as much as GNP.

5. Some mobilizers thought farm use of electricity was unessential. And this was at a time when a high level of production of farm machinery was being maintained so that farmers could raise more food.

And so the arguments went on, and Fairman fought on to keep the industry expanding. That he succeeded does not absolve the industry of the blame for having failed in the years preceding to sell the nation on the importance of electric power. And there probably is a lot more selling to do.

TECHNICAL NOTES

ARCHER E. KNOWLTON

Ice melting on transmission lines dictates small diameter conductors—corona dictates large diameters.

Radio noise from corona on transmission lines may be experienced only a few hundred feet away unless it is propagated over wide areas by coupling with nearby lower voltage lines.

Water lines to vacuum system for the flyash storage bins must be insulated in areas where the water is likely to freeze. Energized soil heating cable has been effective for the purpose.

Ash may contain appreciable amounts of unburned carbon. Why not determine whether the percentage is sufficient to permit sintering the ash into cinder blocks?

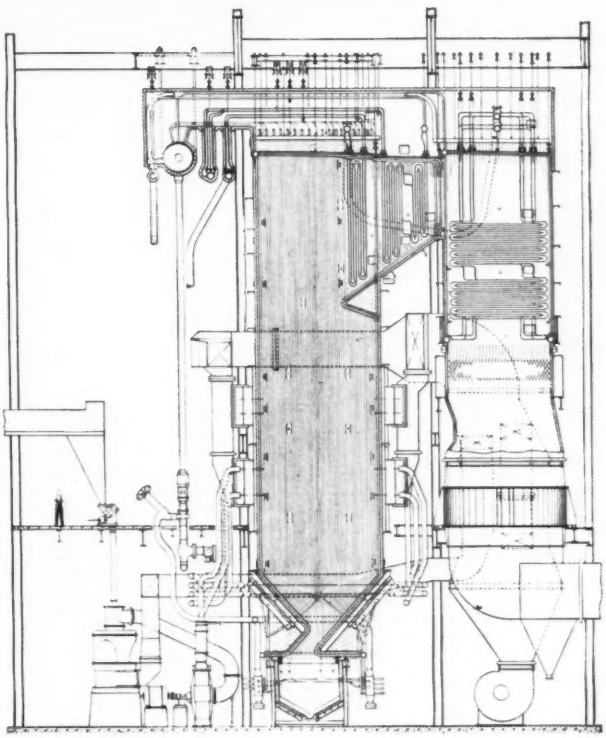
Grounds on control circuits and paging systems should not be allowed to exist, otherwise the battery may be run down and incapable of coping with demand if the plant suffers an emergency.

One-shot lockout is suggested as a way of protecting crews doing live-wire work on circuits equipped with automatic reclosure.

PORTSMOUTH STATION

Virginia Electric & Power Company

C-E controlled circulation boilers



The C-E Unit shown above is soon to be placed in service in the Portsmouth Power Station of the Virginia Electric & Power Company at Gilmerton, Virginia. Stone & Webster Engineering Corporation are the engineers and constructors.

It is designed to serve a 100,000 kw turbine-generator operating at a throttle pressure of 1450 psi with a primary steam temperature of 1000 F, reheated to 1000 F.

The unit is of the controlled-circulation, radiant type with a reheater section located between the primary and secondary superheater surfaces. An economizer section is located below the rear superheater section and regenerative type air heaters follow the economizer surface.

Pulverized coal firing is employed, using bowl mills and tilting, tangential burners. Arrangements are made to use oil as an alternate fuel.

B-646

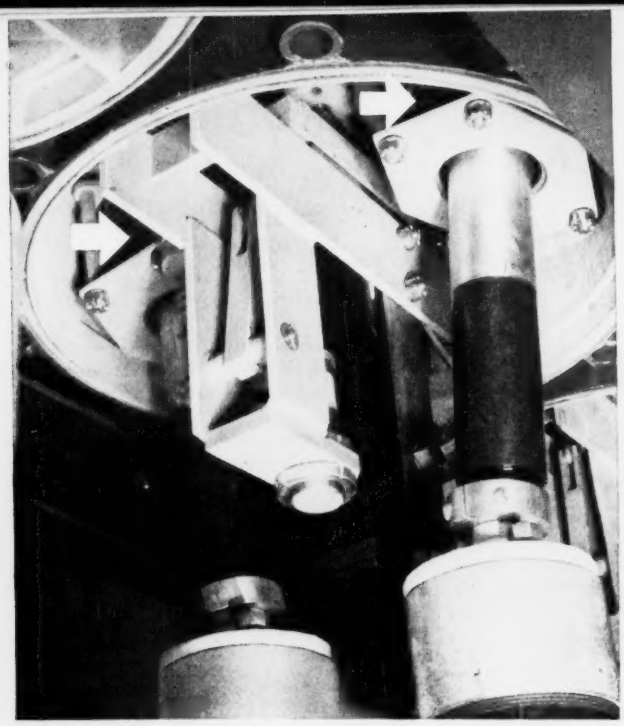
C-E

COMBUSTION ENGINEERING—SUPERHEATER, INC.

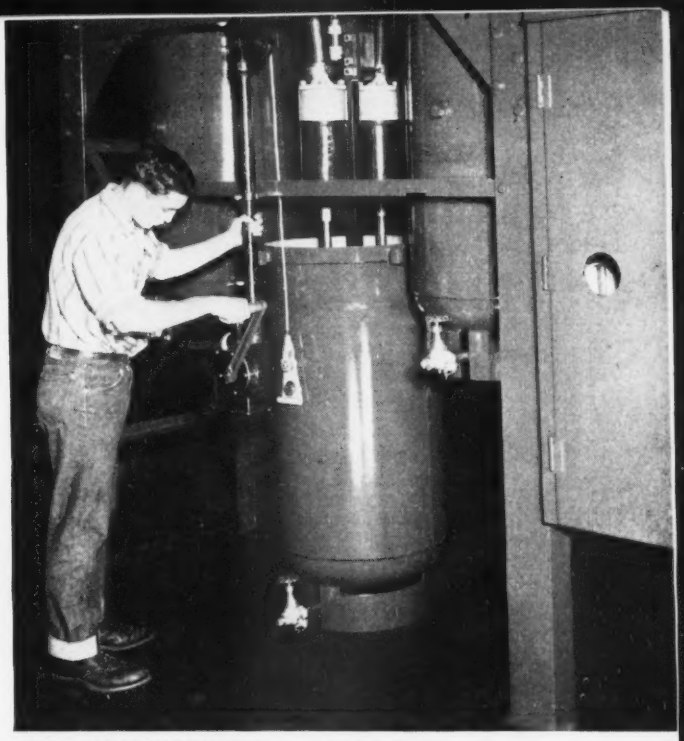
200 Madison Avenue, New York 16, N. Y.

ALL TYPES OF BOILERS, FURNACES, PULVERIZED FUEL SYSTEMS AND STOKERS; ALSO SUPERHEATERS, ECONOMIZERS AND AIR HEATERS

NEW BREAKER, shown here assembled on factory floor, is designed so that all parts are easily accessible for inspection or maintenance. Positive indicating mechanism makes it easy to see breaker position (open or closed) from any angle.



TWO CURRENT TRANSFORMERS provide extra metering when needed. New design provides room for installation of two transformers *on each bushing* as shown.



TANKS MAY BE LOWERED in the field for easy access to bushings and contacts. This makes it unnecessary to drain oil during inspection or maintenance.

New G-E breaker interrupts with shorter arc to cut oil maintenance

New design features improve reliability, simplify maintenance

Improved service reliability and reduced need for inspection and maintenance are the outstanding advantages of the new Type FK-439 and 1200-ampere outdoor power circuit breakers.

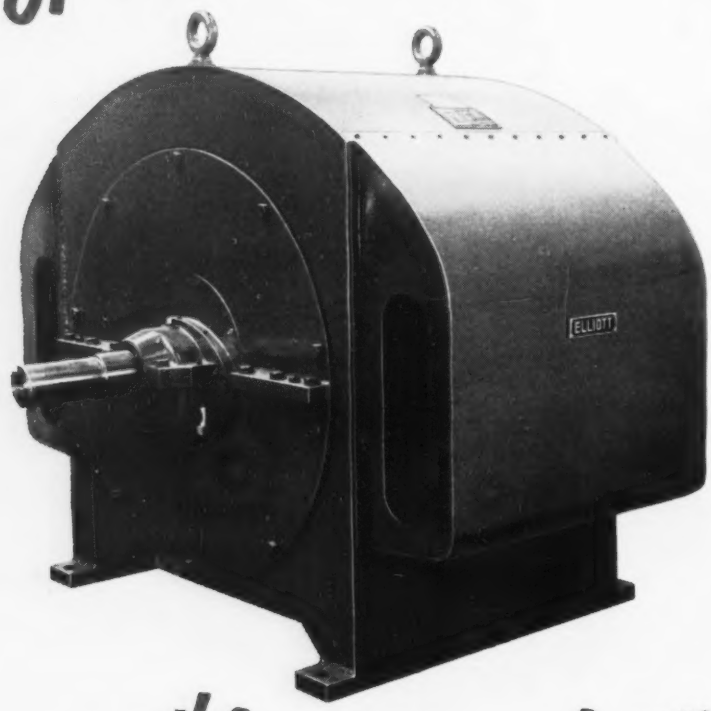
New oil-blast interrupters cut oil carbonization by interrupting faults or load currents with short-arc lengths and low-arc energy. Silver-molybdenum surfaces on the interrupter contacts insure minimum erosion. As a result, fewer inspections will be found necessary, and oil maintenance requirements may be substantially reduced.

Contributing to greater reliability in service is a new, sturdy oil-filled bushing, Type LC. It is of center-clamp construction, thus eliminating all cemented joints. Lower ends of bushings are given a special coating to reduce the electrostatic deposit of carbon particles. This means even less maintenance. Space is provided for two current transformers on each bushing.

The new Type FK-439 breakers are powered by an improved pneumatic operating mechanism, which employs a simple pneumatic trip-free linkage design, completely eliminating the need for a flying latch. Simplified support framework, float-type oil gauge and more accessible pole-unit linkage are among the many detail improvements. For full information, call your local G-E sales representative or write to General Electric Company, Schenectady 5, N. Y. 872-1

GENERAL ELECTRIC

Three degrees of weather-protection



for the ELLIOTT outdoor splashproof motor

TYPE 1 COMPLETE PROTECTION

This filtered separation chamber is standard equipment on these motors. It positively excludes both moisture and dirt. The inverted U-shaped baffle completely reverses the direction of incoming air, releasing most suspended moisture. Changing air velocity and the dust-filter remove any remaining moisture and dirt. The filter, of non-clogging type, may be slipped out for cleaning while the motor is running. Screens protect inlet and discharge from debris, rodents, birds or reptiles.

TYPE 2 PRIMARILY DUST-PROTECTION

Where conditions of heavy moisture are not a major problem, this chamber may be used. The filter insures full protection against dust and dirt, also helping to take care of much moisture. A series of air-reversing baffles beyond the filter furnishes further moisture separation. As in Type 1, the filter may easily be removed for cleaning.

TYPE 3 MOISTURE PROTECTION ONLY

Where dust or flying dirt is not a factor, this Type 3 water separation chamber serves every need. It is similar in all particulars to the Type 1 chamber, except that it does not include the dust filter. As in the standard chamber, rain-laden air can blow right through the chamber from end to end, but the air that is taken into the motor drops its moisture due to many air reversals and velocity changes. This is also the case with snow, which melts before it can enter the winding chamber.

● Remember, the only foundation this motor needs is a simple flat slab. No cored construction, no ducts, no complexity nor extra expense. It's a splashproof motor, weather-protected the Elliott way, and it has made good everywhere.

For details, contact your local Elliott engineer, or write Elliott Company, Ridgway, Pa. for Bulletin PB-7000-3.

Elliott FABRI-STEEL

ELLIOTT Company

RIDGWAY DIVISION

R3-10

Surcharges: NW Storm Signal

Oregon legislators call for probe of extra billings to cover steam generation costs, as utility officals rap federal power policy

As improved hydro conditions ease one phase of the Pacific Northwest power crisis, new pressures have built up in the problem of surcharges on billings of private utility customers, who must pay for abnormal steam generation.

In the Oregon legislature a senator called for an investigation and a representative introduced a bill which would require public hearing before similar levies are made in the future.

Simultaneously, the overall power marketing policies of the Bonneville Power Administration came under attack from Thomas W. Delzell, chairman of the board of Portland General Electric Co, largest of the private utilities serving Oregon.

The surcharges are expected to be before the already grumbling public through June. Oregon utilities that were forced to operate steam facilities estimate it will take at least that long to wipe out costs accumulated since September.

Commission OKs Hike . . . The Oregon Public Utility Commission authorized the surcharges on schedules filed by Portland General Electric, Pacific Power & Light, and Mountain States Power Co in November. Billings first carried the surcharges of 20% in December.

PGE reported in mid-January it figures excess steam costs totalling about $3,131,000 should be recovered. Delzell said "normal operating losses such as storm damage and other emergencies we can and do absorb regularly, but any attempt to absorb a loss as high as that caused by steam plant operation would wreck the financial stability of the company."

Pacific Power & Light's vice president and general manager, George Bragg, reported last month that PP&L is making surcharges only for "abnormal" costs and said this was more than $1.5 million. He said the January billings brought recovery credits to about $500,000. Bragg noted that his firm normally absorbs about $1,250,000 of steam generation in its base operations each year.

Legislature Acts . . . The Oregon legislature came into the picture as state Sen Warren Gill of Lebanon declared he would introduce a resolution calling for creation of a committee to look into the necessity of surcharges. On the same day, Rep Monroe Sweetland, Milwaukee, introduced a bill that would require public hearings before a surcharge could be imposed by the private utilities.

Attack on Bonneville Power Administration by the Portland General Electric official was prompted by the stirrings in the legislature. Delzell laid responsibility for the condition upon "the completely erroneous federal power marketing policies of the last ten years."

"By refusing to enter into perfectly legal power interchange contracts that would have spread the steam costs equitably over the whole region so that all consumers would bear a fair share, the entire burden was placed by Bonneville only on consumers of private power."

The PGE board chairman declared his company would "welcome an investigation" and continued:

"No one knows better than ourselves that the surcharges are discriminatory, unjust and unfair to Oregon citizens. We will be happy to tell the full story of their origin to the legislature . . . The sooner the full story is learned and understood by everyone, the sooner can we bring an end—with the help of the new Eisenhower-McKay team—to the discriminatory federal policies that have caused the surcharges."

Bonneville Answers . . . Bonneville Administrator Paul J. Raver, temporarily away from his desk because of illness, did not comment, but assistant administrator John Davis declared:

"While we understand Mr Delzell's concern, we cannot agree that his statement is supported by any objective consideration of facts. However, we are in agreement with Mr Delzell that a complete public examination of the factors involved in the company's surcharges is desirable, and we will be happy to contribute to such a discussion at any legislative hearing, if members of the legislature consider this desirable."

Anchorage Re-Appraises Plans for Steam Plant

A statement that the Bureau of Reclamation would accept responsibility for power generation in the Anchorage, Alaska, area has led Anchorage city officials to re-appraise their plans for proposed construction of a $3.5 million steam generating plant.

The statement was made by Joseph Morgan, district engineer at Anchorage for the bureau.

The city already has committed itself for some $96,000 in engineering and other contracts for the proposed plant.

Morgan is reported to have told Anchorage officials they can get power from the Eklutna hydroelectric project, now under construction, at a cost of some 8 mills per kwhr for firm power and 6 mills for interruptible power. Cost of power from the proposed steam plant is estimated at 2.5¢.

At the time Anchorage first decided to build the steam plant, the city was unable to receive any assurance of an adequate power supply from the bureau. Morgan recently declared at the annual meeting of the Chugach Electric Association in Anchorage, however, that it is the responsibility of the federal government to develop needed power resources that are beyond the reach of private or local governmental organizations.

Brazilian Committee Okays National Electric Institute

RIO DE JANEIRO (McGraw-Hill World News)—Creation of a National Electricity Institute has been approved by the Committee on Transport of the Federal Chamber of Deputies. The institute would be financially and administratively autonomous, though under the direct subordination of the Ministry of Agriculture.

The institute's job: (1) Draw up a National Electric Power Supply Plan, with expansion of existing generating plant in the country to meet economic developments; (2) study and promote the concentration of power production in regional hook-ups; (3) encourage the distribution of electricity in rural and urban areas; (4) promote measures to contribute towards a reduction of kilowatt costs; (5) draw up norms for authorization or concession to engage in production of power throughout the country.

When an ice storm hit its system, Pennsylvania P&L had a caterer bring field crews . . .

Hot Food in a Cold Emergency

The sleet storm struck Pennsylvania Power & Light with sudden fury. Through the night of Friday, Jan. 9, lines coated with an inch and a half of radial ice came crashing to the ground. By morning 125,000 customers in the service area centered on Allentown were without electric power.

The utility rushed 123 of its own crews to trouble spots and called on Consolidated Gas, Electric Light & Power Co of Baltimore to send up two more. As freezing rain continued to fall, men in isolated areas set to work to repair the lines in a hurry.

Immediately the problem arose for the men directing the repairs: How do you keep the men in the field supplied with hot food while they're far from adequate restaurant facilities?

You can do it by trucking them to the larger restaurants. But that means losing 2½ daylight working hours per man—and the good will of customers when service repairs are delayed as a result.

Company administrators went into a huddle.

"How about sending a Salvation Army canteen truck to take hot food out to the crews?" one man proposed.

"Good idea," said another, "but their equipment isn't quite right for the job. What about a caterer?"

It was worth a try. But finding a caterer who was willing to take on a rough assignment like this one wasn't easy in Allentown. The third one the company approached—Amici Catering Co—accepted.

Field Kitchens Out . . . By Sunday the caterer had two trucks rolling in the field. A PP&L field man as guide was stationed aboard each with a full route and schedule of stops so that every crew would be visited. At that, one truck became mired back in the snow-covered, fog-bound hills the first day and missed one small crew.

Each truck had thermos compartments to keep the food hot, and only the kettles actually needed at each stop were taken out. Coffee was also kept steaming hot in big thermos containers.

The first day's menu included hot roast beef, peas, mashed potatoes, gravy, bread and butter, apple pie, and coffee. As an extra, PP&L supplied each lineman with a pack of cigarettes. On Monday, ham and string beans replaced the roast beef and peas. Menus were varied through the remaining three days. Each meal

was served on china with individual settings of silver for every man. Coffee was served in mugs.

The in-the-field catering fulfilled its two main objectives. Men were fed hot food, and all of it they wanted, right on the job. And precious daylight hours were saved for actual work.

On that basis, a total of 671 meals served indicated approximately 1,700 man-hours saved. Those 671 meals were served on this schedule: 110 on Sunday; 155 on Monday; 133 on Tuesday; 173 on Wednesday; and 100 on Thursday. The two trucks, one of them rented, together traveled about 800 miles. At one particularly muddy spot, one of the trucks was towed about three blocks in and out each day as a matter of routine.

The caterers served large portions. They'd prepared a generous overpercentage of food—nobody complained of not having enough.

Statistics reveal the size of their task. On the five days they prepared: 150 gallons of coffee; 324 pounds of beef; 200 pounds of ham; 175 pounds of pork; 800 pounds of mashed potatoes; and 160 pounds of vegetables. Enough apple pies were baked to feed 750 men. Also sent out on the trucks were 300 large cups of ice cream, two slices of bread for each man, and 20 pounds of butter.

Down for Breakfast . . . As another feature of the program, PP&L arranged to have steaming hot breakfasts ready for the 150 company linemen who came in to town from outside the storm area. Served in an Allentown hotel from 5:30 to 7:30 am, the breakfasts included juice, eggs, ham, sausages, fried potatoes, toast, jam and coffee.

Following its breakfast, each crew was transported in chartered buses to the service depot for assignment. There the line trucks were all ready to roll as soon as the crews climbed aboard. The trucks had been completely restocked with materials and equipment overnight and were fully refurbished and on the line when needed.

Speedy Repair Work . . . When the crews first went out, rain and freezing temperatures had knocked out 3,600 miles of distribution and 1,000 miles of transmission lines. By Monday, only 400 miles of distribution and 138 miles of transmission lines were still out. Customer outages had been cut to 5,500.

PP&L decided the field catering had worked out fine, from the viewpoint of both linemen and customers. Next time the system is hit, you can look for the idea to be SDP—standard disaster procedure.

EARLY MORNING BREAKFAST is served to some of the 150 linemen brought in from outside Pennsylvania P&L Lehigh division at an Allentown hotel. After a hearty repast the men went out to repair the extensive damage caused by the ice storm in an area north of the city

NW Power Plans

Washington municipal utilities, PUD's meet with governor to discuss joint hydro projects

In the expectation that the federal government eventually will withdraw from the power business, municipal utilities at Seattle and Tacoma, Wash., are cooperating with PUD's of the area in planning a joint program of large-scale hydroelectric projects.

This disclosure came after a meeting by Gov Arthur B. Langlie with E. R. Hoffman and J. Frank Ward, superintendents of Seattle and Tacoma City Light operations; C. A. Erdahl, Tacoma commissioner of public utilities, and Bob Jones, chairman of the Seattle City Council's utilities committee.

The city officials said they previously had been consulting with PUD officials.

Large Projects . . . The discussions have not yet dealt with specific projects although Hoffman commented they would be "large projects," since the cities and PUD's already have authority to deal with projects they can handle individually.

Langlie also has met with PUD officials and expects to meet soon with representatives of privately owned power companies.

"Out of these meetings will come a power policy and program pointing towards more effective cooperation with the new national administration, ironing out difficulties we find in our area and bringing the region together for a sound, integrated power operation," said the Washington governor.

Legislative Action Planned . . . Langlie indicated he would seek changes in the law setting up a state power commission which he never appointed and that he also might propose legislation authorizing construction of steam power plants.

Meanwhile, the first bill affecting PUD's was introduced in the state legislature by Sen Harold Kimball, Seattle Republican. It would permit the dissolution of PUD's by a majority vote in the district general election. The bill is likely to receive favorable consideration, as Kimball is serving as a member of the utilities committee.

Detroit Edison Woos Villagers

Michigan utility tries to convince Sebewaing residents it can give them more efficient service than municipal plant

A Michigan court fight between a rural village and a large private power company is picking up more attentive spectators with each round.

The combatants: Detroit Edison Co and the village of Sebewaing, located in Michigan's "Thumb" area.

The conflict: Detroit Edison would like to serve the village; Sebewaing, at least its village council, would rather continue to use its 41-year-old municipal electric system.

Savings Claimed . . . Edison's main gun in the battle is its contention that it could serve the village at a saving of 25% as against the cost of running the municipal system. Among the many advertisements Detroit Edison placed in the Sebewaing "Blade" —and those ads it distributed by mail when the "Blade" advised that the newsprint shortage would not permit the newspaper to run Edison ads—are those listing comparative operating cost figures for the year ending March 15, 1952.

According to Edison, Sebewaing's municipal plant production for that year amounted to 3,650,000 kwhr. Cost to the village: $62,462.33. At Edison's standard municipal rate, as offered to Sebewaing, the cost would have been $46,370.90, or a saving of 25%. Broken down, the cost to the village of operating its own plant was 1.711¢ per kwhr. The cost under Edison operation would have been 1.271¢ per kwh.

Village Restrained . . . The dispute got into high gear last fall when Sebewaing found its generating equipment breaking down. It contracted for a new diesel engine generator. Edison thereupon ran a series of advertisements protesting the installation, and Sebewaing Industries, Inc, secured a temporary injunction restraining the village from installing the new unit.

During the period the injunction was in effect, Edison finished several miles of transmission lines which it intended to install regardless of Sebewaing's action. This line will skirt the village and serve areas farther north. The company tapped into the line and built a pole-type substation just 100 feet from Sebewaing's village limits. Edison then served notice that it was ready to serve the village.

Early in November, however, the injunction was dissolved in circuit court. The village went ahead with installation of its new diesel unit and Detroit Edison was left standing on the outskirts of the village.

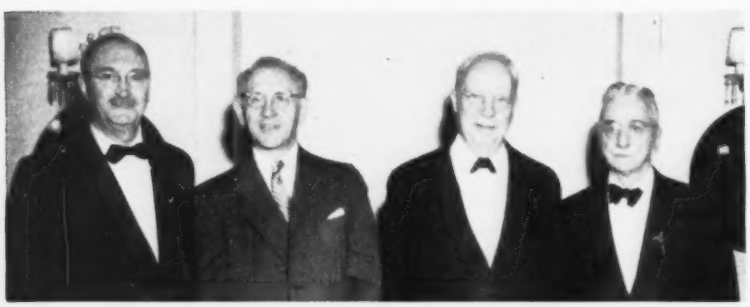
Petitions Court . . . The company petitioned the state supreme court requesting that it be permitted to appeal to it directly and the court has consented to hear the case. This action has the effect of extending the temporary injunction obtained earlier by Sebewaing Industries and dissolved by the circuit court.

In defense of its position, Detroit Edison says Sebewaing is now operating only at the break-even point, still is paying for the unit it installed in 1948, and has taken on the added cost burden of $128,000 to pay for the new generator.

Sebewaing's graduated residential rate at present is 6¢ for the first 15 kwhr, 4¢ for the next 35 kwhr, 2½¢ for the next 200 kwhr, and 2¢ for over 250 kwhr. Edison's rate offer is 6¢, 4½¢, 2¾¢ and 2¼¢ respectively. For 300 kwhr, the Sebewaing net charge is $8.54; it would be $9.10 if Edison were serving Sebewaing.

Offers Services . . . Though its rates are higher, Edison points out that it offers without charge lamp exchange service, appliance repairs, and consulting services, whereas Sebewaing's municipal plant does not.

The 25% saving to Sebewaing would come, according to the company, by eliminating costs the village now incurs through purchase of new generators, depreciation of equipment, interest, insurance, and other costs of maintaining the municipal plant.



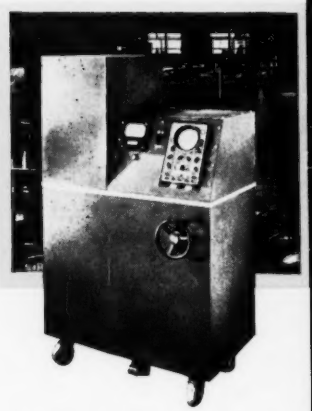
Eminent Members of Eta Kappa Nu

Eta Kappa Nu introduced four newly inducted Eminent Members of its association at a dinner held in New York Jan. 19. The four, pictured above left to right, are Charles A. Powel, professorial lecturer at Massachusetts Institute of Technology; Philip Sporn, president, American Gas & Electric Co; Harold Pender, consultant, Moore School of Electrical Engineering, University of Pennsylvania; and Edward C. Molina, special lecturer, Newark College of Engineering.

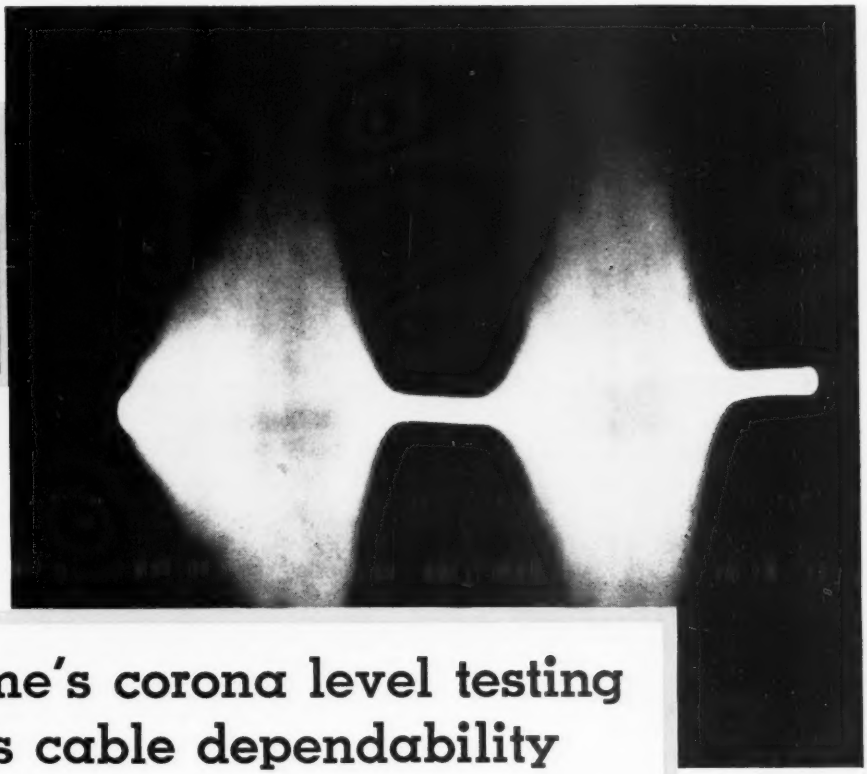
The dinner was held to honor young electrical engineers. An award was presented to Dr John Van Nuys Granger selected by Eta Kappa Nu as the "outstanding young electrical engineer of 1952." Honorable mention was accorded to Gustav W. Staats and Edward O. Johnson. (EW, Jan. 5, p 24).

In a speech before the association Philip Sporn lauded Eta Kappa Nu for its recognition of talented young engineers. He said such recognition is one form of compensation for young men in the engineering field. On the monetary side, the AG&E president noted, compensation is low in all branches of engineering. He said that not only are starting salaries low but in many cases the differential lasts for many years after an engineer begins practice. After a time the engineer will catch up, Sporn declared, but a young man "has to be farsighted indeed not to be deterred from a pursuit of engineering."

The Eta Kappa Nu dinner was held during the week American Institute of Electrical Engineers was having its Winter General Meeting in New York. A full report of the meeting will be in Electrical World Feb. 9.



Specially designed ionization detector for routine factory use measures corona level of all-insulated cables rated at 1000 volts or over.



Why Rome's corona level testing assures cable dependability

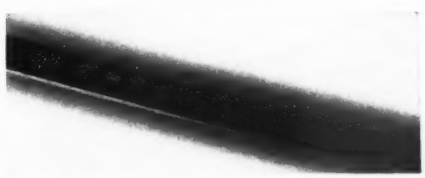
The picture above means trouble. It is an oscilloscope trace of internal ionization in an insulated cable.

Ionization is caused by the electrical break-down of air in pockets within the insulation, or especially where it has not been firmly bonded to the conductor surface or shield. Should this ionization occur at a value below the operating voltage of the cable, several destructive electrical effects may occur such as possible ozone cutting, reduced dielectrical strength, and a substantial increase in dielectric losses. Any of these hazards could result in early failure or reduce the efficient performance life of the cable.

Ionization is particularly dangerous because it cannot be detected by the ordinary visual, physical and electrical testing methods usually applied to cable.

So, to prevent guesswork, to assure you of maximum protection against ionization, *every foot of Rome insulated cable, rated at 1000 volts or over, is thoroughly tested by a specially designed ionization detector.* This instrument accurately measures the corona level of the entire cable. Unless the ionization voltage exceeds the intended operating voltage of the cable, the cable is rejected.

This is one more extra step in Rome Cable's standard manufacturing procedure that assures dependability. This completely new *NONDESTRUCTIVE* method of testing was developed by Rome Cable engineers and was first described in AIEE paper 49-198, "The Measurement and Investigation of Ionization Level of Rubber Insulated Cables," presented in August, 1948.



This X-ray reveals loose insulation—a major cause of ionization.

500,000 CM stranded single conductor RoZone insulated, shielded, RoPrene sheathed power cable . . . 15,000 volts, grounded neutral.

ROME CABLE Corporation
ROME · NEW YORK
and
TORRANCE · CALIFORNIA

ROME CABLE CORPORATION, Dept. EW-2, Rome, N. Y.
Please send me a copy of ..... Rome Cable's Ionization Testing Procedure; ..... Rome Power and Control Cable Catalog.

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Company.....
Address.....
City..... Zone..... State .....

a full measure of profit

Sangamo J Meters

To assure a full measure of profit, Meter Department Executives agree that a *modern* meter must sustain its accuracy for extremely long periods . . . should require minimum maintenance . . . and must provide ample capacity for future loads.

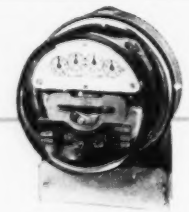
Sangamo Meters go far beyond these requirements. For example, as a part of Sangamo's continuous program of improvement, new corrosion-resistant finishes have been applied to Type J Meters. These finishes give greater protection from the effect of corrosive atmospheres and greatly prolong meter life under conditions of extreme exposure.

As new technologies develop, they will be used by Sangamo to still further increase the dependability and long life accuracy that the Utility Industry has a right to expect from the watthour meters they buy.

For the complete story, get Sangamo Bulletin 201.

SANGAMO
ELECTRIC COMPANY
SPRINGFIELD, ILLINOIS

Only Measured Facts are Known Facts



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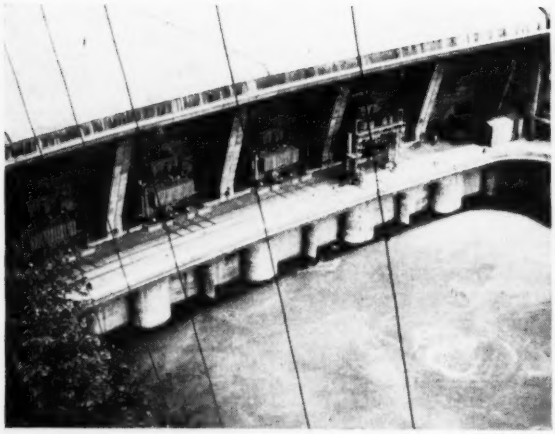
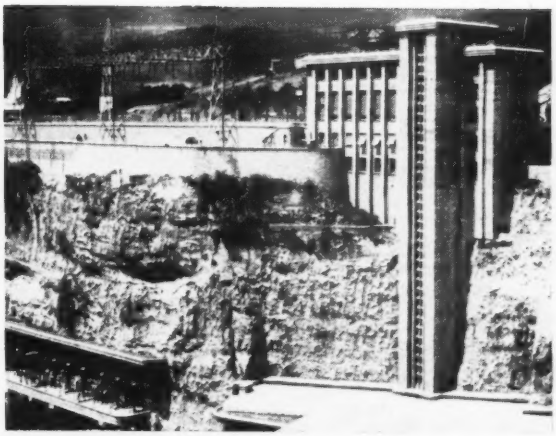


THREE-PHASE, 70,000-kva, 220-15-kv, air-cooled transformers are on downstream-side at Genissiat. Roof provides bomb protection



HIGH-VOLTAGE CABLES carry energy from transformers to steel structure above. At right is elevator shaft between plant, offices

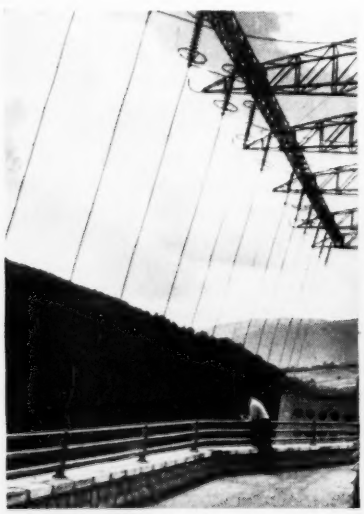
Genissiat Dam—French Coal Saver

To conserve its coal supplies and yet get the electric power it needs so badly, France has turned to its rivers, especially the Rhone and its tributaries. On the Upper Rhone nine power projects have been planned. One, Genissiat, has been in operation for approximately a year. The project also has navigation and irrigation functions.

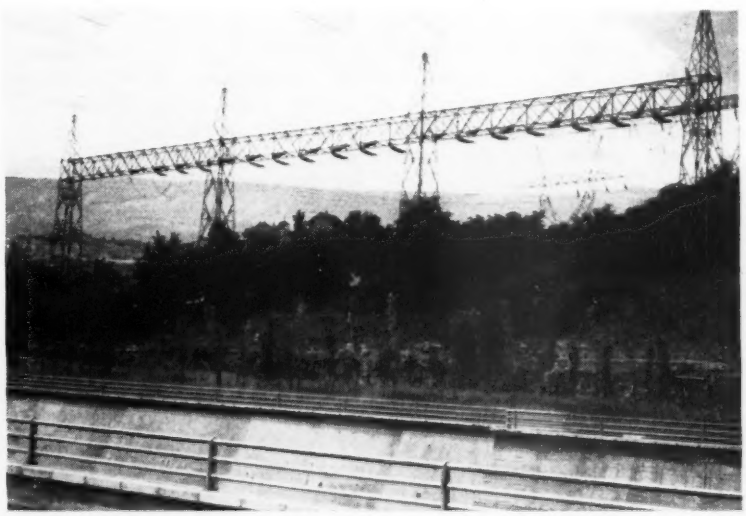
Installed capacity is 350,000 kva in five units, operating at a head of approximately 226 ft. The dam is of concrete gravity type with the powerhouse built integral with it. Construction is designed to minimize damage to equipment in the event of a bombing attack.

The Genissiat project is owned and was constructed by a publicly owned company known as Compagnie Nationale du Rhone, created in 1934 to study and develop the entire Rhone River from the Swiss frontier to the sea. The power is being used by neighboring cities, the electric railroad connecting Paris and Marseille, and also by Electricite de France which supplies electric energy to most of the country.

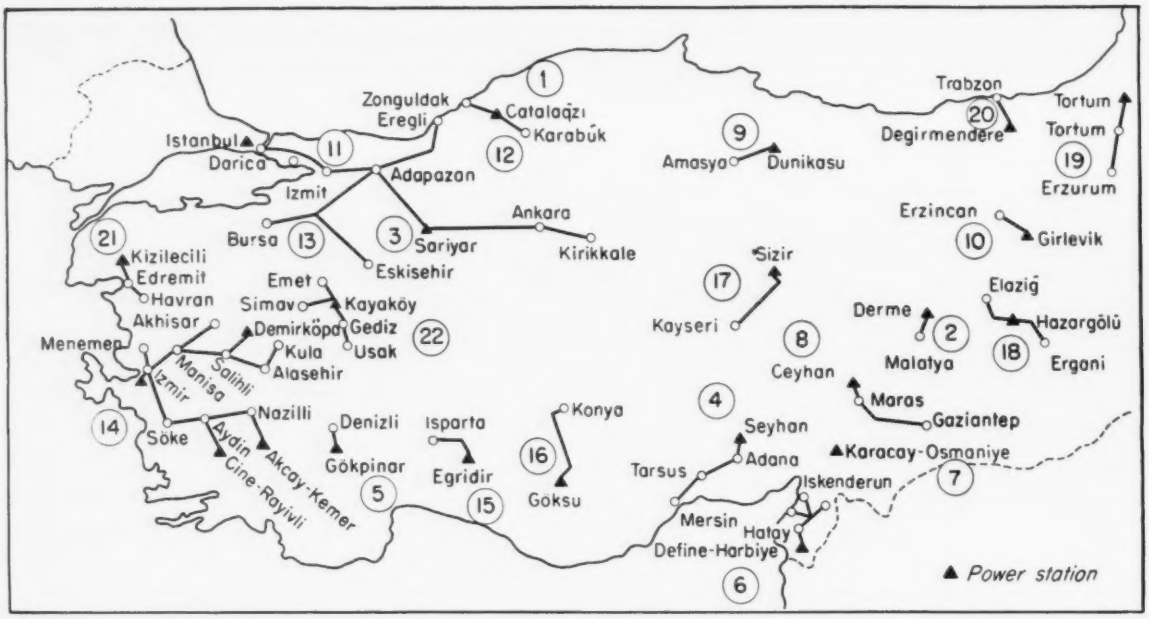
France is still in the list of power-short countries. This year installed capacity is expected to reach 13 million kw, but capacity available at peak will be only slightly over 8 million kw. So at peak there will be a deficit of almost 1 million kw. Most thermal systems are in bad way. Generating equipment is so old that output often will not reach nameplate rating. Coal is scarce, and that available is generally of low quality. These are the reasons why the French government is doing so much to provide additional hydro capacity.



STEEL STRUCTURE above plant is terminal for lines because plant is located in "hole"



THIS DEAD END STRUCTURE carries the 220-kv transmission lines to the double circuit steel towers scarcely visible in the background. In foreground is the Genissiat spillway canal



Hydro Expansion in Turkey

An extensive program of hydroelectric power development is under way in Turkey. Eight stations, with a combined ultimate capacity of 222,145 kw, are already under construction. Another six are projected for an additional 226,280 kw. Several other plants will be built but their capacity is unknown.

In 1949 Turkey had a capacity of 347,000 kw, only 4% of which was hydro power. It is expected that the country's capacity will be raised to 500,000 kw by 1954.

Location of the plants under construction and projected are shown on the above map. Two plants are already in operation. The 60,000-kw plant at Catalagzi (1) is a thermal plant which went on the line in 1949 to serve the city of Zonguldak. Turkey's only sizable water power station is at Derme-Malatya (2). It has a capacity of 4,500 kw.

Of the projects under construction, the largest is the Sariyar hydro plant (3) with an ultimate capacity of 160,000 kw, which will be connected with Zonguldak, the Ankara, Bursa, Eskisehir, and Instanbul areas.

Another large project under construction is the Seyhan Dam for the irrigation of the Seyhan valley and the supply of electricity to the valley and the Adana-Mersin area (4). The power station will have a capacity of 54,000 kw.

Other plants under construction and their capacities are Gokpinar-Denizli (5) 435 kw; Defne-Haribye (6) 3,000 kw; Karacay-Osmaniye (7) 400 kw; Ceyhan-Maras (8) 1,560 kw (initially); Durukasu-Amasya (9) 750 kw; and Girlevik-Erzincan (10) 2,000 kw. Work has begun on stations at Kizilkecili-Edremit (21) and Kayakoy-Gediz (22) but there are no details available as to their size.

Of the proposed projects, the largest is that for the Gediz and Menderez valleys and the Izmir area (14). The installation will consist of three plants —Gediz-Demirkopru (ultimate capacity, 70,000 kw), Cine-Kayirli, and Akcay-Kemer.

Other planned installations with medium-sized hydro plants are Erigli-Isparta (15) 8,000 kw; Goksu-Konya, 6,480 kw; Sizir-Kayseri, 6,600 kw; Hazargolu-Elazig (18) 12,000 kw; Tortum-Erzurum (19) 16,200 kw; and Degirmendere-Trabzon (20).

An extensive network of transmission lines will be constructed as part of the development program. Power grids for the Ankara-Instanbul-Zonguldak (3,11,13), the Izmir-Menderes (14) and the Mersin-Seyhan (4) areas will be the first of their kind in Turkey.

In addition to producing power a good many of the projects will provide irrigation for large areas.

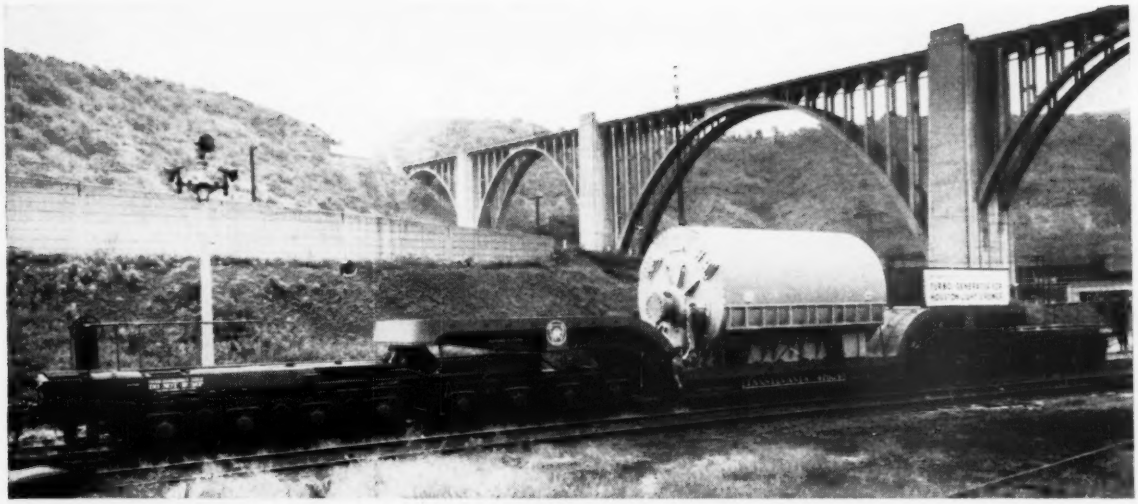
Dairyland's New Building To Include Heat Pump

A heat pump, which will do a job of heating when it's cold and cooling when it's warm, is being installed in the new $500,000 combination office building, garage, and warehouse being erected in LaCrosse, Wis., by Dairyland Power Cooperative. The pump, which is being used in only a few office buildings in the nation, will meet heating requirements in all but extremely cold weather, according to General Manager John P. Madgett.

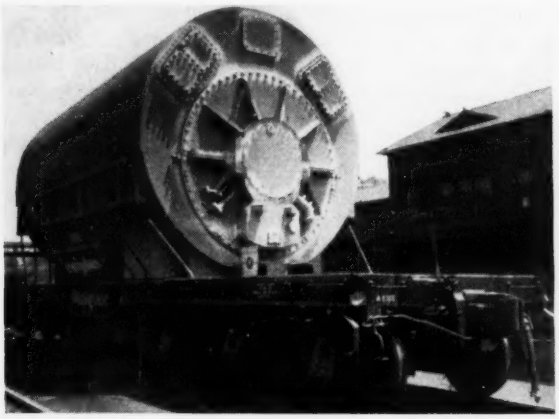
Dairyland's new headquarters will consist of a two-story main office, 38′ x 204′; a one-story accounting wing, 54′ x 35′; and a combined garage and warehouse, 84′ x 117′.

The heat pump will supply all the heat needed for approximately eight months out of the year. An oil burner will provide supplemental heat during severe weather.

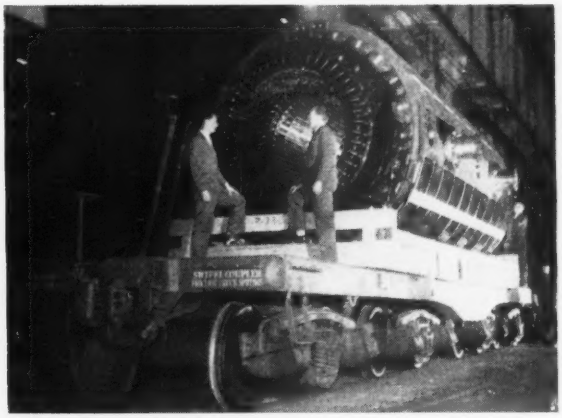
The cooperative's interest in the pump also lies in its effect on the future of electric power suppliers, Madgett says. He estimates that if only one in four homes using Dairyland's power were to convert to the heat pump, the co-op would have to double its generating capacity.



PENNSYLVANIA RAILROAD's new drop-center car can carry 503,600 lb. Largest car in the world, it measures 125 ft overall and weighs 495,000 lb. Weight of car and load is distributed on 16 axles in four trucks. Here it carries a 426,500-lb, assembled 90,000-kw generator



NEW WESTINGHOUSE FLAT CAR is 45 ft long, weighs 106,000 lb, has eight axles in four trucks. It can carry 493,000 lb but here is carrying only a 326,000 lb stator of an 80,000-kw generator



NEW YORK CENTRAL CAR is 48 ft long, weighs 103,000 lb, has eight axles in four trucks. It can carry 497,000 lb but here is carrying only a General Electric Co, 391,000-lb stator inner frame assembly

Big Cars Haul Assembled Generators

Mammoth railroad cars now transport heavier assemblies of electrical equipment from the manufacturer to the customers' plant sites, cutting erection time and cost. Thus shipping, always a problem with heavy equipment, has been linked closer into the engineering of modern power stations.

Turbo-generators up to 90,000 kw have been shipped completely assembled (EW, Oct. 27, 1952, p 35). This 426,500-lb load, shown above on Pennsylvania's 495,000-lb car, was 12 ft 3 in. wide and 15 ft 7 in. above the rails. It required circuitous routing for clearance and was preceded by two empty cars and followed by two others to comply with bridge loading limitations. Sometimes speed was reduced to 5 mph.

Brackets in the stator frame of the generator supported the rotor on babbitted steel bearings. A spacer bolted between generator-end coupling and the bearing bracket held the rotor in place. All openings were closed with steel covers and caulked to exclude dust and moisture. As an additional precaution, silica gel was enclosed to absorb any residual moisture, and a color card indicated the humidity in the generator. In addition to saving the dismantling and reassembly time, this method of shipment eliminated the need for cleaning and drying out the machine in the field.

But turbo-generators are growing larger and heavier, and it seems unlikely that the railroads can raise their car capability to match. Even so, some of these advantages can be retained in partial assembly shipments. In some cases, the rotor is removed and the stator shipped as a sealed unit.

Where size precludes this method, manufacturers build the stator core and coils into a supporting innerframe. This unit is shipped assembled, and the housing is added in the field.

As the quest for economy forces up generator sizes, design engineers will seek closer coordination with transportation facilities to retain the advantages of shipping assembled.

MEETING REPORT

Cable Insulation Discussed . . .

. . . at Doble Engineering Co conference in Boston. Equipment testing techniques also are studied at the meeting

Advanced techniques in equipment testing and significant trends in maintenance of insulating materials were discussed at Doble Engineering Co's 20th annual conference for clients at Boston last month.

During the conference Doble demonstrated a new and portable apparatus for continuous indication of the proportion of moisture present in insulating oil translatable in terms of parts per million. This equipment is particularly applicable to circulating systems for transformer and cable oils. It shows promise of improved control over timing to change blotters in filter press operation.

Use of Polyethylene . . . It was brought out in discussion that the processing of controlled resins used as ingredients with polyvinyl chloride bears heavily upon the performance of such material in cable operation. Favorable results were reported being obtained from use of polyethylene in connection with non-leaded control dc cables on both positive and negative leads. Quality of workmanship was considered of major importance.

Where rubber insulation and neoprene jackets are securely bonded, it was noted, water cannot accumulate between them. Failures of 65-v control cables in moist locations have given considerable trouble and it was felt the situation calls for closer attention. Black neoprene has been found to deteriorate less than colored and the use of colored neoprene for coding, it was suggested, may well be discontinued.

It was announced that an agreement has been reached by the bushing committee (C-57) of the American Standards Association regarding complete interchangeability of bushings of similar voltage ratings on transformers built to ASA standards. In addition, one bushing in each voltage class is to be used on circuit breakers to obtain full interchangeability.

Static Capacitors . . . One company reported it now is installing 100,000 kvar, 110-kv static capacitors at a substation, with reactors of 145 mh expected to reduce inrush current from 28,000 amps at 12,000 cycles to 12,000 amps at 3,500 cycles as the last bank is switched on. Two 24,750-kvar banks and three 16,800-kvar banks are provided, each bank having a separate 110-kv oil circuit breaker. Normally the three smaller banks will be switched for voltage control (1,600 times a year on estimate) and the two large banks only when peak reactive supply is required (about 500 times a year).

Economical solution of transformer gas leak detection was announced by one speaker. The detector will indicate a leakage as small as 0.01 oz. of Freon in a year. Best test results come on a quiet, clear day, he said.

Mobile Substations . . . On one system it was reported mobile substations saved about $1,000 in labor on each of five jobs. On 18 jobs interruptions of 2 to 6 hours were avoided by using the utility's three 3,000-kva units. It was expected that each $40,000 unit may save at least $10,000 per year on construction and maintenance work.

Operating engineers at the meeting reported progress in generator insulation tests is continuing, but no single test is adequate. Essential tests include dielectric absorption, power-factor, ionization location, and dielectric strength. More work in the laboratory on samples of generator insulation types is needed to give a better groundwork in fundamentals, they said.

New types of test like slot discharge examination were held promising, but thorough visual inspection was considered vital. Tape separation study and through-bolt insulation testing were reported coming into wider use.

Coffer Dam Break Floods Project

Water 90 ft deep flooded the excavation of the Folsom Power Plant when a protective coffer dam burst Jan. 9, following the collapse of a 40-ft-high earthfill coffer dam at Folsom Dam on the American River in northern California. Heavy rains were blamed for the break, which caused about $350,000 damage to the dam. Picture above shows the power plant site, center, viewed from downstream after the main diversion coffer dam above the dam site, upper right, gave way. When a part of the gravel and steel protective coffer dam, center right, was washed out, flood waters inundated the power plant excavation.

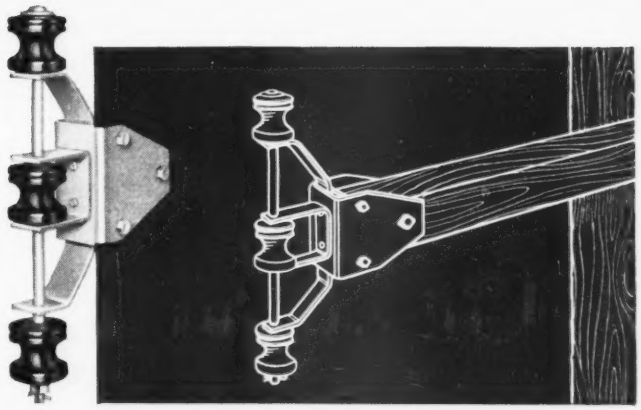
The concrete wall to which the steel was anchored apparently was not damaged. Five of the 12 sheet piling fills, protective work around the plant, were tipped over by the water. Removal and replacement is expected to cost between $100,000 and $200,000. Bureau of Reclamation engineers think the concrete already poured will hold.

LINE CONSTRUCTION BLUEPRINTS

HOW SOME UTILITIES ARE MAKING CONSTRUCTION WORK EASIER . . . IN WAYS THAT MAY BE HELPFUL AND USEFUL TO YOU.

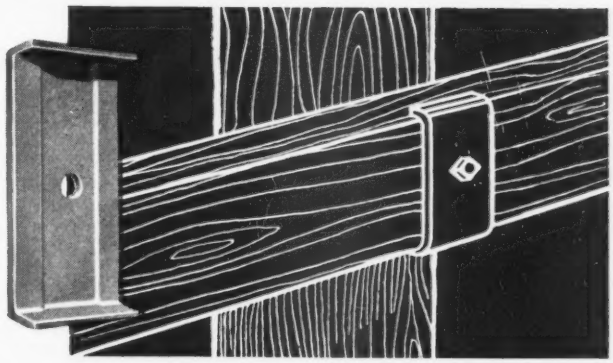
CROSSARM END RACK

Designed to take 3-wire service leads directly from the end of the secondary crossarm. Tends to conserve pole space and clean up overcrowded poles—without impairing climbing space. Heavy galvanized steel. 5/8" buttonhead thru-rod. Cat. No. 330073B1.



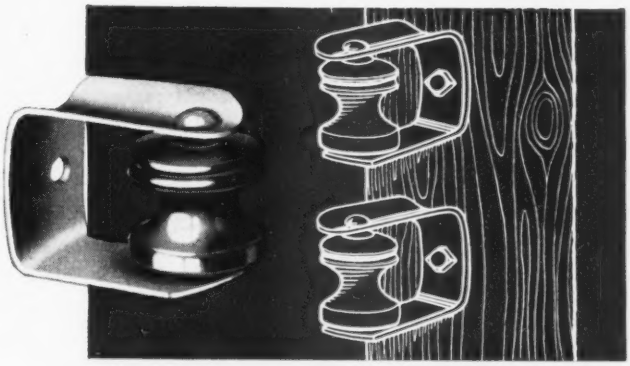
CROSSARM REINFORCING PLATE

For use over crossarms with crossarm mounting bolts to make doubly sure that the arms won't split or check. Heavy 3/16" steel, 3 7/8" wide by 8" long, thoroughly galvanized, with 3/4" offset angle end and 13/16" diameter hole. Cat. No. 323489X1.



SINGLE SPOOL SECONDARY RACK

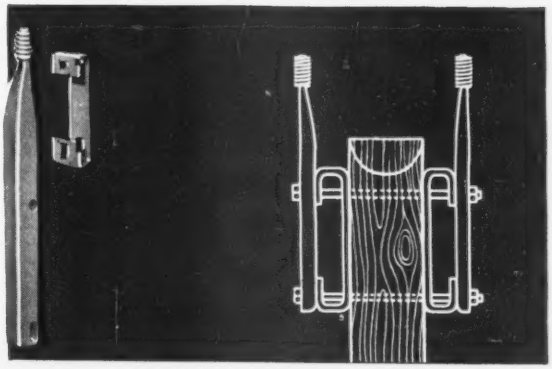
Heavy gauge steel strap base 3" wide, with 4" length from pole to 5/8" steel insulator pin. Base is curved to fit the pole, insuring a good, rigid installation. Available with or without wet or dry process spool insulators. Cat. No. BA25X7 (without insulator).



POLE TOP PIN and MOUNTING BRACKET

A strong pole top pin and a companion extension bracket that can be mounted singly or in pairs. The pin is No. 8 gauge steel. Transverse loading, 1500 pounds, longitudinal loading, 1200 pounds. Cat. No. 317011B1.

Bracket is 1/4" steel; gives 2" extension from pole. Bolt holes and slots accurately match the pin. Cat. No. 211048A1.



Do you have a line construction problem?

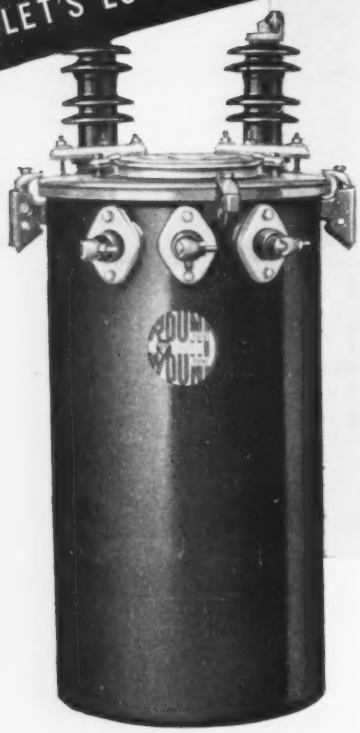
These are just a few of thousands of L-M line construction specialties. If you have a problem, let us know. We may have standard or special items in stock that will solve it. Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

LINE MATERIAL

Line Construction Materials

Complete Coordinated Equipment for Distribution Today

LET'S LOOK AT THE FACTS



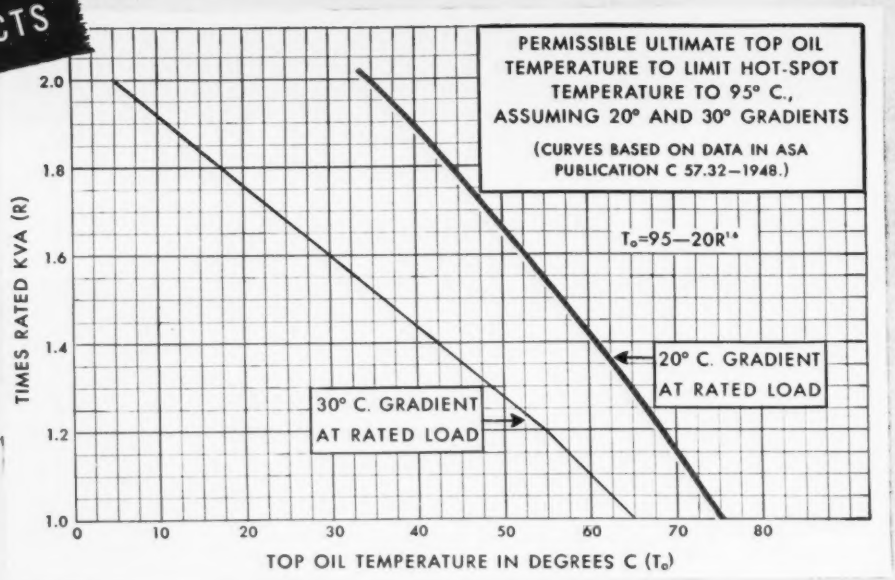


FIGURE 1—The colored line represents the conservative performance typical of a core-type transformer with highly efficient cooling such as the L-M Round-Wound, while the black curve represents the loading permissible with a transformer with less efficient cooling. These are ultimate oil temperatures. Because of efficient dissipation of heat from the coils to the oil, the oil reaches its ultimate temperature more rapidly in L-M Round-Wounds than in some other styles of construction.

How L-M Round-Wound Design Permits Heavier Loading or Longer Transformer Life

Round coils wound directly onto a wound core provide exceptional cooling that keeps copper and hot-spot temperatures relatively low even under high short-time overloads.

by **ROBERT P. THOMPSON,**
Assistant Chief Engineer,
Transformer Division,
Line Material Company

Greater transformer utilization through heavier loading offers substantial savings on almost any power system. Therefore the subject of transformer loading is receiving exceptional attention, both from utility companies and from the manufacturers.

Overload capacity of any individual transformer depends upon such factors as ambient temperatures, previous condition of loading, duration of the overload, and the sacrifice in transformer life that the user is willing to make.

But the principal factor is the transformer itself. Since overload capacity is limited by hot-spot temperature rise during the overload period, this capacity is largely determined by the design of the coils and the efficiency with which heat can be dissipated to the oil.

Obviously a core-type transformer, which has greater coil surface exposure, offers better overload capacity than shell types, in which coil surfaces are blanketed by core steel.

Round coils offer greater overload capacity than rectangular coil types, because coils present more unobstructed surface to cooling oil.

The Round-Wound transformer combines the advantages of the core-type transformer with the rapid heat dissipation of unobstructed round coil surfaces —and offers, in addition, the advantages of the cruciform-cross-section core, which provides natural oil passages for cooling the inside of the coils. Thus in the Round-Wound transformer, heat is dissipated *more rapidly* and more uniformly. For this reason the Round-Wound design provides higher short-time overload capacity, or a longer life with the same overload (Figure 3).

Get Details on L-M Round-Wound Transformers

Ask the L-M Field Engineer, or write Mr. Thompson at the Transformer Division, Line Material Company, Zanesville, Ohio (a McGraw Electric Company Division).

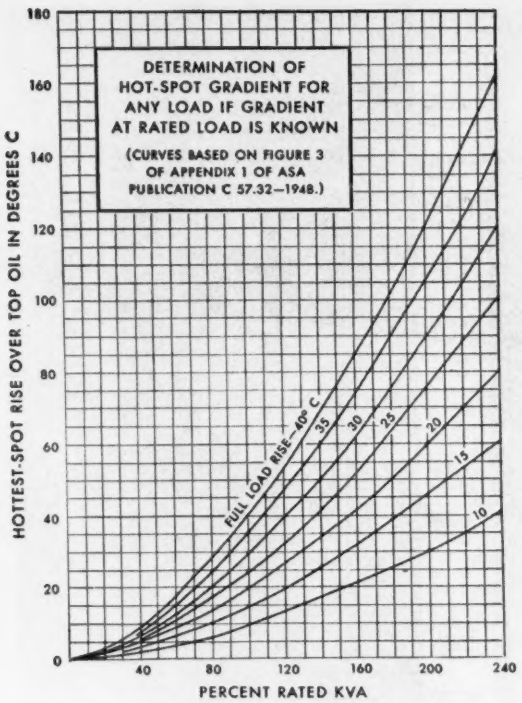


FIGURE 2—Here is presented a method of determining the hot-spot gradient for any load, if the gradient at rated load is known. It is to be noted that the higher the gradient at rated load, the more rapid is the rate of increase in the gradient with overload. The L-M Round-Wound transformer with a lower hot-spot gradient at rated load has a greater capacity for overload before damaging temperatures are reached.

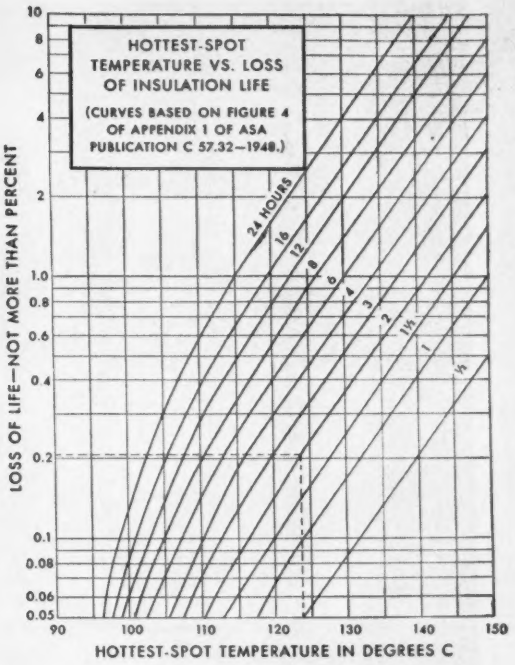


FIGURE 3—The primary factors in the deterioration of cellulosic insulation are time and temperature. Here is a method for approximating the loss of insulation life due to these two factors. Obviously an L-M Round-Wound transformer with its appreciably lower hot-spot temperatures during overloads will reduce the possible insulation damage and increase the overall life.

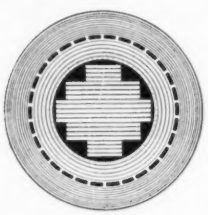


FIGURE 5—Cruciform cross section of the wound core provides oil passages between core and coils. In addition spacers between windings and between layers in larger sizes provide additional oil circulation, giving exceptionally good cooling for the entire unit.

Some of the Outstanding Characteristics of L-M Round-Wound Transformers

High Short-Time Overload Capacity

Better Regulation at all power factors

High Impulse Level, with ample creepage distances and generous insulation

High Short-Circuit Strength, because round coils have less tendency to distort

Low Exciting Current, because the core is not cut or disturbed after annealing

Better Loss Ratios with lower total losses

Filled with ORTO®, L-M's oxidation-resistant transformer oil, inhibited for longer life.

"Round-Wound" is a Line Material Co. trademark.

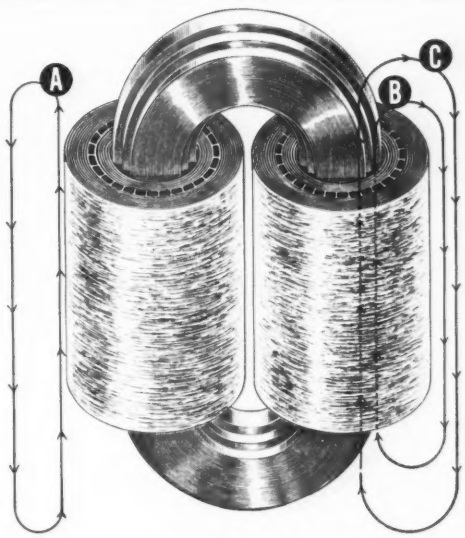
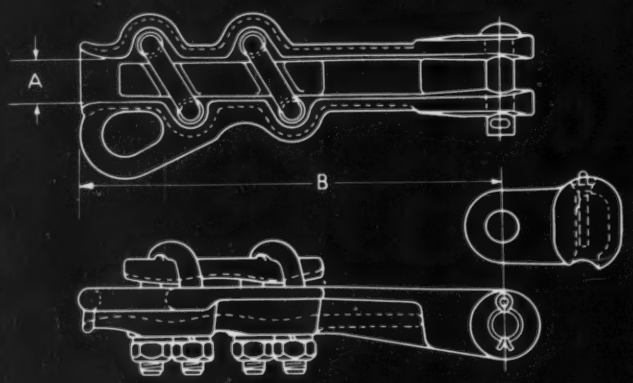


FIGURE 4—Diagrammatic presentation of the Round-Wound core-coil assembly. The core is wound of continuous strip of oriented silicon steel of various widths to give a core of cruciform cross section. Core is not unwound or cut, because coils are wound directly onto the completed, annealed core. Coils surround a maximum of the core circuit. They present a relatively large area to cooling oil.

LINE MATERIAL Transformers LM®

Complete Coordinated Equipment for Distribution Today



NEW LINE OF CLAMPS FOR DISTRIBUTION FEEDERS

Catalog Number	Connector	Conductor Dia. Inches (A)	Length Inches (B)	Ultimate Strength Pounds
	MALLEABLE IRON			
87652	none	0.15—0.37	4½	7,000
87662 87663	none socket	0.30—0.60	8¼	8,000
87672 87673	none socket	0.46—0.86	9¼	8,000
87682 87683	none socket	0.65—1.25	11	8,000
87692 87693	none socket	0.86—1.55	12½	10,000
	ALUMINUM			
87650	none	0.15—0.37	4½	4,000
87660 87661	none socket	0.30—0.60	8¼	8,000
87670 87671	none socket	0.46—0.86	9¼	8,000
87680 87681	none socket	0.65—1.25	11	8,000
87690 87691	none socket	0.86—1.55	12½	10,000
	BRONZE			
87654	none	0.15—0.37	4½	7,000
87664 87665	none socket	0.30—0.60	8¼	8,000
87674 87675	none socket	0.46—0.86	9¼	8,000
87684 87685	none socket	0.65—1.25	11	8,000
87694 87695	none socket	0.86—1.55	12½	10,000

. . . THE O-B STRATELINE

Here is a deadend clamp that offers you an ideal combination for handling cable sizes used in modern distribution feeder construction: (1) Many years of successful service experience. (2) Cable diameter range, in five progressions, from 0.15 to 1.55 inch. (3) Slip strength safety factors of at least three for the usual design tensions used in distribution cables. (4) Short length and slender shape for close phase spacings. (5) Easily taped if desired. (6) Convenient application of safety coverings for hot line work. (7) Catalogued in aluminum, bronze, or malleable iron construction. (8) Exceptionally low cost.

If you want these characteristics in a deadend clamp for modern distribution feeders, specify the O-B Strateline.

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NEWS ABOUT PEOPLE

Frank Bash Appointed a VP . . .

. . . and treasurer of California-Oregon Power. Veteran employee fills posts left vacant by resignation of Morey D. Field

FRANK C. BASH

California-Oregon Power Co has advanced Frank C. Bash to the posts of vice president and treasurer. Bash, who has been serving as assistant treasurer, succeeds Morey D. Field, who has resigned after 30 years with the company.

Pres A. S. Cummins has reported that Field's resignation was prompted by ill health. Field's post as a director on the board was filled by the election of Henry H. Pringle, a Medford industrialist.

Bash graduated from Culver Military Academy, Culver, Ind., in 1921 and from the University of Washington, Seattle, in 1929. He was first employed by California-Oregon Power in the summer of 1924 on transmission line construction. He has been continuously employed by the utility since 1926, with the exception of a leave of absence to complete studies at the University of Washington.

Worked as Auditor . . . He served as auditor in charge of accounting on the construction of the company's Prospect No. 2 and Prospect No. 3 hydro plants in 1927-28 and 1931-32. He was loaned to Mountain States Power Co in 1930 and was in charge of accounting on a 10,000 kw addition to that company's steam plant at Coos Bay, Ore.

Upon completion of the Prospect No. 3 hydro plant in 1932 Bash did valuation and original cost work. Three years later he became chief clerk of the accounting department. In 1946 he was made assistant treasurer, a position he occupied until he was elected vice president and treasurer.

Field was named treasurer in 1928, a vice president in 1931, and a director in 1932.

•

Paul L. Moran has been appointed manager of Clinton Electric Light & Power Co, recently acquired by Connecticut Light & Power Co.

Sumner Day has been made division superintendent of Ohio Power Co's Eastern Division with headquarters at Steubenville. With the utility for 30 years, Day has been plant records engineer.

MARK B. WHITAKER

Named to Knoxville Post

Mark B. Whitaker has been appointed the general manager of the Knoxville (Tenn.) Utilities Board. He succeeds the late Max C. Bartlett (EW, Dec. 29, p 122). Whitaker, who has about 30 years municipal and engineering experience, has been serving as superintendent of the water division and as assistant general manager. He received his engineering education at the University of Tennessee.

GORDON S. MEYRICK

Wisconsin River Power Appoints Meyrick a VP

Gordon S. Meyrick, power and engineering manager of Wisconsin Public Service Corp, has been elected vice president and director of Wisconsin River Power Co.

Wisconsin River Power was incorporated in 1947 by three Wisconsin utilities for the purpose of developing the Petenwell and Castle Rock hydroelectric plants on the Wisconsin River below Wisconsin Rapids. The three utilities—Wisconsin PS, Wisconsin Power & Light Co, and Consolidated Water Power & Paper Co—share equally in the plants' output.

Meyrick succeeds A. G. Carson in both capacities. Carson was also with Wisconsin PS as vice president and chief engineer until his retirement in January, 1951.

Meyrick graduated from the University of Wisconsin electrical engineering school in 1922 after serving two years in the Navy during World War I. Meyrick, who joined Wisconsin PS as an electrical engineer in 1923, was appointed assistant chief engineer in 1942, and was made power and engineering manager in 1952.

•

Mrs Nancy Y. Schofield has been made assistant secretary of Kansas City Power & Light Co. Mrs Schofield is secretary to H. B. Munsell, president of the company.

T. W. Schroeder, formerly planning engineer of Iowa Power & Light Co, has been appointed assistant chief elec-

trical engineer of Illinois Power Co with headquarters at Decatur. Prior to joining Iowa P&L in 1949, Schroeder was associated with the now defunct United Light & Railways Co and General Electric Co, where he did central station application work.

Walter G. Jens, vice president in charge of operations for Duquesne Light Co since 1938, has retired after 40 years of utility service.

A. F. FRANZ

Franz Elected President of John Roebling's Sons

A. F. Franz, president of Colorado Fuel & Iron Corp, New York, has been named president of John A. Roebling's Sons Corp, a new Colorado Fuel & Iron subsidiary located at Trenton, N. J.

Charles Roebling Tyson, who served as president of the Roebling concern until its acquisition by Colorado F&I, has been made executive vice president of the new subsidiary. Tyson started with the Roebling company in 1935. He became secretary-treasurer in 1940 and president in 1944.

Franz, who began his career in the steel industry as an open hearth pitman with Otis Steel Co, Cleveland, was general superintendent of Wickwire Spencer Steel Co's Buffalo (N. Y.) plant before Wickwire merged with Colorado F&I in 1945.

He was put in charge of all operations at Colorado F&I's Pueblo plant in March, 1946, and that November was elected vice president in charge of operations for the entire corporation. In 1948 he was appointed a director and in 1949, executive vice president and president in 1952.

VAN H. LEICHLITER

Leichliter Named a VP of American Steel & Wire

Van H. Leichliter has been appointed vice president of operations of the American Steel & Wire Division of United States Steel Corp. Leichliter, who has been assistant vice president of operations since 1950, succeeds Walter F. Munford, who assumed the presidency of the Wire Division on Jan. 1.

In another appointment, John A. Slenker was named assistant vice president of operations of the division to replace Leichliter. Prior to this Slenker was district manager of operations at Duluth, Minn., for the division.

Leichliter started with American Steel & Wire in mill metallurgical work in Worcester, Mass., in 1930. Slenker joined the division in 1935 at the Donora, (Pa.) Steel Works in the physical laboratory, where he started as a metallurgist.

•

G. F. DeCoursin has been named general sales manager of Four Wheel Drive Auto Co, Clintonville, Wis. DeCoursin, who came to FWD in 1936, has been since 1950 field sales manager in charge of all sales activities of FWD dealers and salesmen.

Herbert S. Riggs, engineering consultant in construction for Northern States Power Co since last September, has retired. Riggs, with the utility for 37 years, served as electrical superintendent of construction for 15 years before he was appointed to the present post.

Ralph Sayles, electrical superintendent of the Fremont Division of Toledo (Ohio) Edison Co, has been promoted to operations superintendent of the Lake Shore Division at Fremont. **J. C. Letterman,** meter foreman in the Fremont Division, replaces Sayles.

John R. Hersey has been appointed assistant sales manager of C. O. Bartlett & Snow Co, Cleveland. In addition to continuing as head of the coal handling department, Hersey will assist in supervision of all sales activities.

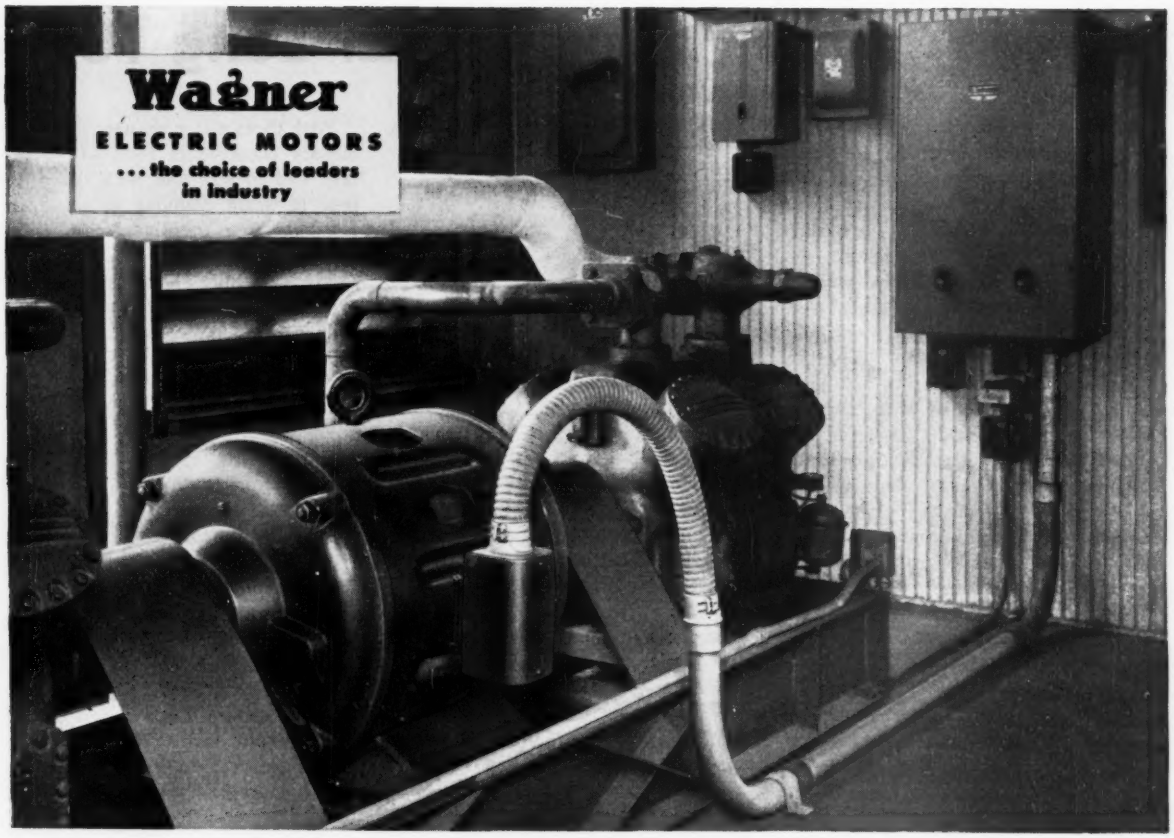
OBITUARY

George O. Stewart, 62, general sales manager of Public Service Co of Indiana, died Jan. 10. After working for Kentucky Power & Light Co, Stewart went in 1918 to Interstate Public Service Co, now Public Service Co of Indiana, to serve as assistant to the president. He was in the sales department for 34 years, heading the department for 15 years.

Harold A. Dambly, 53, engineer in charge of the Testing Division of Philadelphia Electric Co, died Jan. 15 at Philadelphia. He was employed by Philadelphia Electric in 1923. Active in engineering circles, Dambly had served as a member of the board of examiners and past chairman of the Philadelphia section of the American Institute of Electrical Engineers and vice president of the Philadelphia Science Council. He was also a member of the American Society for Testing Materials, and was active in committee work in the Edison Electric Institute and the Pennsylvania Electric Association.

Edward C. Jones, 72, retired secretary and director of the Crocker-Wheeler Manufacturing Co, now a division of the Elliott Co, died Jan. 13 at East Orange, N. J. Jones, an electrical engineer, joined Crocker-Wheeler in 1911, and was named secretary in 1930 and director in 1933. He retired in 1945.

David E. Renshaw, 61, an electrical engineer who was connected with Westinghouse Electric Corp for almost 46 years, died recently in Ankara, Turkey. At the time of his death he was working as a consultant for a Chicago engineering firm retained by the Turkish government to survey mining conditions in the country.



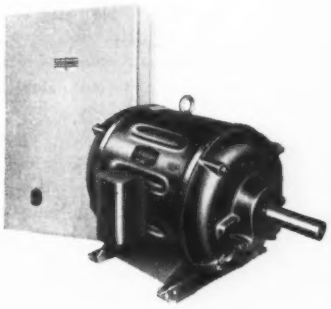
Pick-up for Production...

Summer temperatures in St. Louis meant serious production difficulties for Cupples-Hesse Corporation, one of the largest manufacturers of envelopes, wax paper products and bags. Whenever the temperature rose above 85° F, paraffin on the wax paper became too soft for feed rollers to carry the paper through the presses. This meant shut downs on many afternoons during the plant's busiest period.

The problem was solved with a hundred-ton air conditioning unit that keeps the temperature for the entire department (20,000 sq. ft.) at 75° F winter and summer. The installation is powered by a 100 hp Wagner part-winding Motor and Starter Combination.

These Wagner Combinations meet "locked-current" restrictions on large installations by limiting the in-rush of electric current during the starting period. They offer substantial savings in both purchase price and installation.

Wagner motors are made in sizes from 1/125 to 400 hp, with a wide variety of enclosure types and mountings. Wagner engineers are qualified to specify the correct motor for your needs. Consult the nearest of our 32 branch offices, or write us.



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AUTOMOTIVE BRAKE SYSTEMS — AIR AND HYDRAULIC

WM52-6

Take Another Look at Your Long-Term

STUART M. CAMPBELL, partner, Booz, Allen & Hamilton Management Consultants

Adequate planning in the electric power industry must be long-term. It must be comprehensive. It must be imaginative as well as technically competent. But primarily, it must be regarded as a major function. And it must be specifically provided for in the organization scheme. With these principal objectives, sound planning will be much nearer realization. Let's take a look at this $25-billion industry and see if your long-term planning is adequate.

This industry in recent years has enjoyed a phenomenal rate of growth. Within the past ten years, the output of electricity in this country has more than doubled, and it is probable that within the next five to ten years the demand will double again. Every company in the power business today faces major expansion.

Ownersh'p Changes . . . Along with this rapid growth, there have been enforced on the industry certain changes in form of ownership. These changes stem from the widespread elimination of holding companies and the return to emphasis on operating companies. For a period of years the industry grew into large systems, covering great areas of population, and providing a centralization of ownership, which made possible large scale financing and the supplying of centralized top level management.

Along with this came centralized supplying of financial, legal, and engineering knowledge. With this basic industry framework, the local operating company was responsible for day-to-day operation of the generating plants and distribution system, for the local community relations, and for the employment of operating personnel. But it did not have to be concerned with long-range engineering forecasts, problems of construction of added generating or other capacity, financing these facilities, or a myriad of management functions.

Companies Become Self-Sustaining . . . The change in ownership places these operating companies in the position of becoming self-sustaining, independently financed, and locally managed enterprises. The board of directors becomes a group of people known to the company and known to the town. Local management now must provide needed funds, meet its personnel problems, and maintain direct contact with the stockholder group to which it becomes responsible. It is no longer merely operating management—it is top management, with all of the responsibilities that the term denotes.

With these major changes that have already occurred in form of ownership and in size and with the prospect of again doubling in size in a few years, the industry faces important organization problems. The companies not only must expand their management personnel, but they must review the management functions that are required and determine the manner in which they can best be provided. The added capacity they must provide in the next few years may well require a reappraisal of their basic structure in order to see whether the plan that serves today will also serve ten years from today.

Special Problems . . . The industry has many of the characteristics of other big businesses and faces many of the same problems. But it is important to note that electric companies also face some special problems. A practical understanding of the organization problems which must be faced requires a knowledge and an awareness of the special elements that to some degree set the industry apart. These special characteristics are shown below.

With an understanding of some of the special characteristics of the industry and with recognition of the major job of physical expansion of capacity facing it in the future, it will be of interest to review some of the

10 Special Characteristics of the Electric Industry

1. **Importance of Service**
   Service to customers is of paramount importance and outweighs the price factor in determining customer attitudes.
2. **Essential Service**
   It must supply all customers who wish to purchase its services and must remain in its service area.
3. **Public Interest**
   The fact that it operates in the public interest must be given primary consideration in all management actions.
4. **Effect of Competition**
   The immediate policing effect of competition is not present, but its long-range effect is highly important.
5. **Investment**
   The investment per employee in a typical company may be five to ten times that of other industry.
6. **Stability**
   Its physical facilities determine day-to-day operations. Management decisions have a long cycle impact.
7. **Franchises**
   The fact that it is given grant to do business by a government body tends to create a monopolistic viewpoint.
8. **Regulation**
   Its activities are regulated by the body granting a franchise and by the federal government.
9. **Profit Ceilings**
   Its profits are limited by rate regulation.
10. **Government Competition**
    The invasion of the power industry by the federal government sets up a serious long-term threat to the existence and growth of private power companies.

historical factors that tend to create organization problems.

Despite the exciting uses of their product, the job of producing and distributing electricity has been allowed to become routine. The result is that not enough smart young engineers have gone into the business, and those who have entered it have found progress slow. The whole industry has suffered from lack of attention to personnel requirements. It frequently does not exhibit the merchandising awareness that has characterized our modern sales organizations nor does it demonstrate such startling technical developments as have made the chemical and oil companies move with rapid strides toward new fields.

Executive Salaries Low . . . The industry has not only suffered from low rates of executive compensation but has traditionally resisted the introduction of personnel from other lines of business. All of these conditions, together with the high degree of routine in its day-to-day operations, have resulted in a failure to create a good training ground for management.

With a lack of close contact with broad management problems and with absentee management in many respects, there has been a lack of sound executive personnel development programs—a subject which has achieved top level attention in general industry for a considerable period.

There is a real need for definite and constructive plans for executive development. Too frequently the second level of management is composed of men who have had inadequate opportunity to develop the qualifications required for sound performance in top level jobs.

Cost Control Essential . . . Regulation of earnings, intended to hold down earnings in a non-competitive situation, has had some tendency to discourage cost reduction efforts and to reduce management's interest in cost control. Over a period of time, however, great strides have been made in technical developments, and there is a basic interest in doing a good job that will cause sound management to take an ever-increasing part in furthering control over costs.

Measurements of performance in the industry can be greatly improved. Despite the opportunity for establishing standards for performance in an industry where operating comparisons are possible to an unusual degree, the industry is notably behind in this area. Too much attention is paid to establishing the differences between companies—one stresses its metropolitan customer load against another's rural lines; others look at physical differences. Despite these legitimate differences, there are few industries where there is a wider field for the development of performance standards than this one, where operating comparisons can be applied.

Look at Over-All Operation . . . There is some tendency in the industry to meet problems by step-by-step increase of existing functions. Thus,

14 Questions Management Must Answer for a Long-Range Planning Program

1. Do you have clearly defined objectives for your company? Do your major executives know what they are?
2. Do you have a basic plan for growth? Have you provided adequately for decentralization as capacity increases?
3. Have you provided a separate and distinct planning function or is your forward planning a part-time job that gets pushed aside in the press of current work?
4. Do you have an executive development program that focuses attention on the management needs that will become fully apparent with enlarged capacity and with years added to the present management personnel group?
5. Have you thought of an executive development plan that will enable coming talent to see something of more than one area of the business? Are you looking at the engineering department as a possible supplier of talent for the commercial department?
6. Could your senior executives profit from a plan that would enable them to spend several years thinking about improvements on the basis of their long experience rather than keeping them tied to specific responsibilities right to the last day of their service?
7. Do you have an industrial relations department that provides not only an intelligent approach to labor relations but also provides the equipment for studying your compensation practices as they relate to the introduction of potential engineering, merchandising, financial, and accounting talent into the company?
8. Have you recognized the difficult problem of providing merchandising thinking in the sales area, or have you stopped with people who are adequate to answer the technical problem of quoting rates for the supplying of your product? Is your sales program geared to development of the territory as well as to meeting the immediate needs of your present customers?
9. Have you thought of coordination as something that does not just happen—that you need to provide some machinery for seeing that your top functional executives are aware of the impact of changes in their work on other areas?
10. Have you spent any money on getting better performance standards with which to judge what goes on in your company?
11. Do you have an industrial engineering group which is authorized and equipped to study operating methods at any point?
12. Have you freed one good man in each functional area from a specific set of duties so that he could think about the manner in which the department is established and operated?
13. Do you allow your people to make regular trips to some other progressive company just to get into another atmosphere for the incubation of ideas?
14. Have you visualized the probable size of your general offices five years from now, and then studied how to avoid using any more general office space by reorganization, by methods improvement, by relocation of work in district offices, etc.?

the typical company busily engaged in construction of added capacity may only see itself in five years as the same enterprise—but with more generating stations, more substations, more miles of line, more people in the commercial department, more people in the billing department, etc. It is difficult to step back and visualize that all of these changes may have overtones that will call for a very different organization.

And being essentially a technical business, there has been some assumption that technical training will meet the management problems that come with larger size. On the contrary, the things that make a good superintendent in one power plant may not be the characteristics required of a good vice president of power production.

Technical knowledge does not necessarily equip one to meet human problems. The abilities to plan ahead, to determine policy, to establish performance standards, to develop leadership talent are management needs that are often poorly met as an efficient lower level operating executive is pushed ahead to take over these fundamentally different responsibilities.

Develop a Program . . . With recognition of the organization and personnel problems that face the industry, there must be developed a program for meeting them. Such a program should not merely be expedient. It requires an analysis of the problem in the light of the principles that govern sound organization. It requires that forward planning itself be recognized as a major—not an incidental—function that can be of the greatest assistance in achieving size without losing effectiveness.

The job is to see how a consideration of your present organization will lead to questions about the structure of your company and how those same questions will lead to the development of suggestions for change that will facilitate the management of the company as it enters upon this further expansion program. Some of the questions that will arise as you start to think about forward planning as a major function are listed on page 33. This list is by no means a complete one, but it may serve to provoke thought.

Now take a look at your planning function—it will pay off.

Mexico to Buy Up 5 Utilities

Federal Electric Commission gets approval of Chamber of Deputies to issue $15 million in bonds to cover purchases

The Mexican government is stepping up its power business. Federal Electricity Commission plans to issue nearly $15 million in federal bonds to acquire private electric companies. In addition the agency will expand its own generating facilities. (EW, March 17, p 16).

Financing Plan OK'd . . . Mexico's Chamber of Deputies has approved the plan calling for the issuance of the federal bonds. Companies to be acquired include New Electric Co of Chapala, S. A., Morelia Electric Co, Hydroelectric Co of Manzanillo, Western Hydroelectric Co, and Guzman Electric Co. Other private utilities also are to be acquired gradually, according to current plans.

Known as "Bonds of the Electric Industry of the United States of Mexico, 1952," the issue will yield 2½% interest semi-annually, and will be amortized within 20 years. Commission of Credit Money and Credit Institutions and Federal Executive Division are studying the plan to arrange terms and proper regulatory measures for floating the bonds and administration of the acquired companies.

Federal System Expands . . . At the end of 1952 the federal power agency had a capacity of 389,808 kw, about one-fifth of the country's total estimated installed capacity of 2 million kw. By the end of 1953 the commission's capacity will reach 564,008 when plants now under construction are completed.

Federal Electricity Commission, boosted its capacity from 405 kw in 1939 to 267,957 kw in 1951. In 1953 the commission will have 214 plants in the Miguel Aleman Hydroelectric System, with an installed capacity of 364,785 kw. This system is destined to become the principal electrical energy producing unit in the country.

With the aid of federal funds, the commission has built hydro plants in 23 locations throughout Mexico. Major single project, in the Valle de Bravo region, has developed 88,000 kw for Mexcio City and surrounding industrial areas, while the 22 other plants have a total of 196,360 kw. Tingambato Plant alone, also part of the Miguel Aleman system, will have a capacity of 132,000 kw.

From 1939 to 1946, Federal Electricity Commission produced only 3% of total national generation, but accounted for 14.3% in the 1947-51 period. While figures for 1952 will be substantially higher, 1953 output will leap to new peak levels. From 1947 to 1951, total production was 17,056,-129,000 kwhr, of which 2,436,853,000 kwhr was produced by the commission.

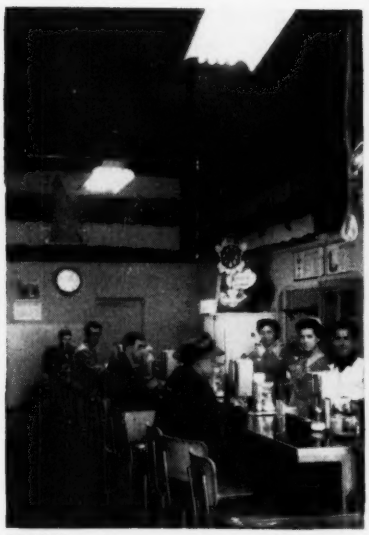
Development of electrification in Mexico in the near future will probably be at a much more accelerated rate than that of the last decade. There is every evidence that heavy investment will be made for electrification, especially now in rural areas during the next six years under the regime of President Adolfo R. Cortines.

Need for Power . . . Need for electricity in Mexico is shown by figures released by Mexican Light & Power Co. In the Federal District, which is Mexico City and environs, and in the surrounding area, inhabited by 16% of the population, electrical consumption is about 50% of the total production. This district and surrounding states are served by the Miguel Aleman system. Mexican L&P has estimated that by 1960 its own service area will have total electric requirements rising to 3,421,100,000 kwhr, or an increase of 94% with relation to 1948, and an annual increase of about 8%.

While tremendous strides have been made in Mexican electrification, this progress has been achieved with only 25% of the inhabitants of the republic having electricity available in their homes. About 20 million persons still are without electricity.

South Dakota Electric Unit

South Dakota Electric Council, a new organization, has been set up by electric cooperatives and private power companies in the state. Purpose of the council is to coordinate any activities for the good of the electric industry, particularly in the merchandising of electrical goods. The council will not engage in political or legislative activities.



BEFORE and . . .

AFTER

Sylvania Electric Products, Inc

New Lighting Enthuses Snack Bar Owner

Business increase of more than 100% and great improvement in employee efficiency. John Barsky, owner of the Orpheum Malt Shop in San Diego, Cal., credits these results to the new lighting in his re-modeled place of business. The previous lighting was spotty and of low intensity, far from giving an impression of bright cleanliness. The "before" and "after" pictures show the change.

The entire installation required only nine 8-ft fluorescent fixtures, each using four T-12, 430 M. A. lamps. They were arranged in two continuous rows of four fixtures each, with one fixture across the front of the rows. Five torpedo-type fixtures with 150-w R-40 spot lamps were installed across the window area.

The room is long (42 ft) and narrow (16 ft) with a ceiling height of 18 ft. Fixtures were suspended 12½ ft from the floor spaced on 9-ft centers. With a total wattage of 3510 for all fluorescent fixtures, the average illumination at the working level after 30 days was 70 ft-c. The lighting was designed by R. J. Huff of the San Diego Gas & Electric Co.

Joint Range Promotion Planned for April and May

A coordinated electric range promotional and advertising campaign based on the theme "Women Who Know—Cook Electrically" is now being planned for the months of April and May by the Residential Section of Edison Electric Institute and the Electric Range Section of the National Electrical Manufacturers Association, New York City. Many manufacturers, in addition to their regular national advertising, will give added support to the campaign with their distributor and dealer organizations through local advertising in those localities where the electric utility campaign program follows the suggestions and recommendations developed by the joint coordination committee.

They will also make available a number of promotional materials for adoption in conjunction with the power company spring campaigns.

Local dealers and distributors will be encouraged to tie-in with the promotions.

This activity is the direct outgrowth of a move started early in 1952 by the Dealer Coordination Committee of EEI to establish among the electric utilities a coordinated campaign calendar for the promotion of four major appliances—the range, the water heater, the freezer and the clothes dryer. The Committee believes that dealers should be able to increase the sale of these appliances if the entire industry planned to promote the same appliance at the same time. In this way local campaigns would be strengthened by national advertising resulting in stronger and many more numerous customer impressions. Last May, after a thorough study of current promotional activities, the Committee drew up a Coordinated Campaign Calendar suggesting the months of the year in which the various appliances should be promoted in order to achieve maximum sales throughout the industry.

The suggestions are: Ranges—March, April, May. September, October, November. Water heaters—March, April, May. Freezers—May, June, July. Clothes dryers—January, February, March, September, October, November.

Switch-off Rod Feature Of New Cluster Brooder

New infrared 4-lamp cluster brooder, which includes a "Tilt-M-Pole" rod extending 13 inches downward to insure that brooder will tilt when rod comes in contact with litter or the floor, has been developed by LML Engineering and Mfg. Corp, Columbia City, Ind. Built to cover a brooding area for 300 to 500 chicks, or

200 to 400 poults, it features a mercury switch that turns off all lamps if the brooder is tilted as little as 15 to 20 deg.

Fixture is comprised of a circular flanged galvanized plate to the bottom of which is attached a smaller dome-shaped galvanized plate with dome inverted to allow an enclosed area for insertion of lamp sockets and wiring. Affixed to top is a thermostat wired to control two of the lamps, turning them on and off as required by varying house temperatures.

Utility's Range Campaign Aids Summer Sales

HENRY J. NEWBAUER, Advertising Manager, Patchogue Electric Light Co, Patchogue, N. Y.

A range campaign entitled, "The Pelco Range Carnival," run by the Patchogue Electric Light Co, a non-merchandising utility, helped local dealers sell 155 electric ranges through eight weeks.

During the campaign over 2,500 customers visited Patchogue Electric's show room. The utility has about 14,000 residential customers, and over 3,000 of them are summer residents.

The campaign was based on newspaper, radio and direct mail advertising, plus a large display of ranges in the company showroom. This display was decorated for a carnival effect.

Both radio and newspaper advertisement carried local testimonials on electric cooking and extended an invitation to visit the utility's showroom. As an aid to increase traffic, free gifts were offered. The opportunity was presented to win an automatic coffee maker; one was given away each week.

The display consisted of two ranges from each manufacturer who wished to feature his product. Names of dealers appeared above the ranges. This range display formed a huge circle in the middle of the company showroom and had gaily colored ribbons and pastel colored blackboards.

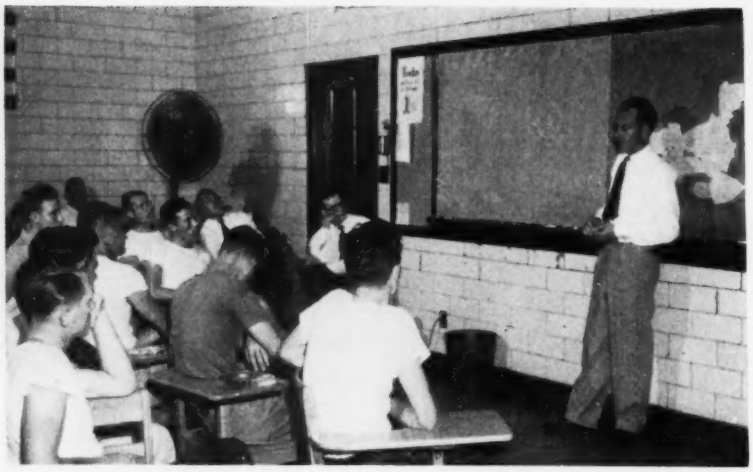
A member of the Home Service Department answered questions, demonstrated ranges and distributed literature. All prospects were turned over to local dealers immediately.

Some progressive dealers pitched in by following the utility's "Carnival" theme and making attractive window and floor displays. These same dealers advertised in the newspaper and over the radio (spot announcements). These dealers reaped the harvest.

A 12-page "newspaper type" mailing was sent out to 4,170 three-wire service customers without electric cooking. It consisted of news items concerning the electric range plus full page ads by the participating manufacturers.

A few dealers mailed out cards offering free installation. Results were good.

A contest was run at the same time as the campaign. In order to learn how present users of electric ranges felt toward their ranges, 10 questions regarding the electric range were listed on a folder and sent to customers now enjoying electric cooking. For the best answers prizes were awarded, consisting of a mix-master, electric iron, deep fryer and electric clock. Replies amounted to about a 5% return and included many good ideas for future advertisements and advantages of electric cooking heretofore overlooked.



Dayton's firemen trainees learned fundamentals of electricity in course taught by Dayton Power and Light Company. Course was given to 30 trainees. Warren E. Senseman is instructor

Teach Electricity to Firemen

Dayton's firemen trainees know more about tracking down faulty wiring and the causes of electrical fires, thanks to a training course for firemen conducted by Dayton Power and Light Company. Thirty firemen attended. The two-hour program was under the direction of Dwight Garber of the Company's Rural Sales Department.

A 20 minute film called "The Principles of Electricity" was followed by nine demonstrations using a wring demonstration board. Demonstrations covered: making a simple two wire circuit; the meaning of the electrical terms volt, ampere and watt; making a three wire circuit; wiring for safety; the causes of voltage drop; the effect of wire size; and the principle of selecting wire size.

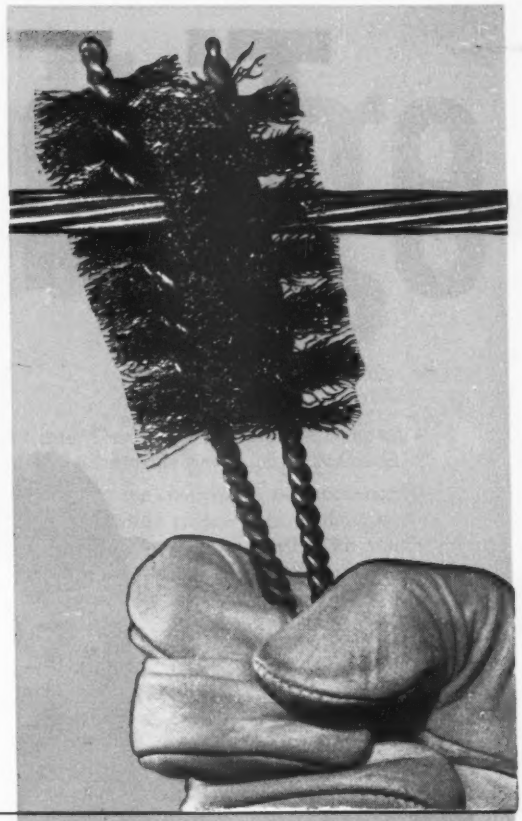
Purpose of the Adequate Wiring Bureau were explained by Herbert Snead of the Company's Adequate Wiring Department. Requirements of the National Underwriter's code were discussed and the firemen were told what to look for in inspecting houses for faulty wiring. The fire department expressed appreciation of this basic source of information.

Maytag Announces Dryer

Matching its automatic washer in appearance, an automatic electric clothes dryer will be placed on the market early this year by The Maytag Co of Newton, Iowa. The dryer uses a condensation principle which carries all moisture and lint to the drain where it is flushed away by a power pump. The new dryer is equipped with immersion type heating units unaffected by moisture. It has a capacity of 18 lbs of wet clothes and the cycle can be adjusted by a timer for any period up to 115 minutes for difficult-to-dry materials, including a 5-minute cooling period. Dimensions are 36 in. high, 31½ in. across and 26½ in. deep.

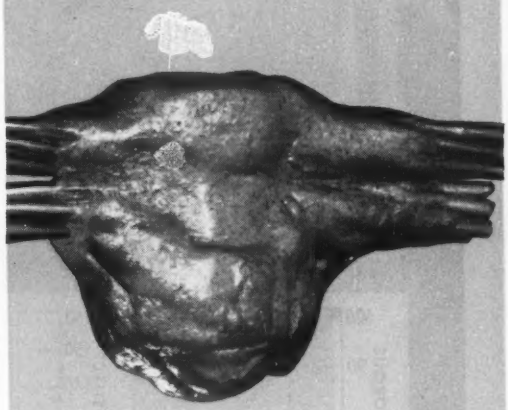
For Profitable, Maintenance-Free Construction

Make CLEAN CONNECTIONS with a KEARNEY Conductor Cleaning Brush



Just a few, fast strokes of this specially designed, "V"-shaped brush quickly cleans off the most stubborn corrosion and foreign matter . . . even between conductor strands. KEARNEY CONDUCTOR CLEANING BRUSHES are available with a sure-grip Insulated Metal handle, or with a universal fitting for all Fit-On poles. As they are used, the brushes can be easily rotated, or replaced when necessary.

Keep CONNECTIONS CORROSION-FREE with KEARNEY AIRSEAL



It's just a matter of seconds to *permanently* seal every connection from moisture, oxidation and corrosion with this pliable, hand-moulded compound. KEARNEY AIRSEAL's high dielectric strength makes it particularly outstanding as both an anti-corrosion seal and insulator, even on underground applications. Hot, cold, wet or dry, AIRSEAL will not age or deteriorate. It always remains pliable and tight.

Write Today for Prices and Quantity Discounts.

JAMES R. KEARNEY CORPORATION
4224-42 Clayton Ave. St. Louis 10, Missouri

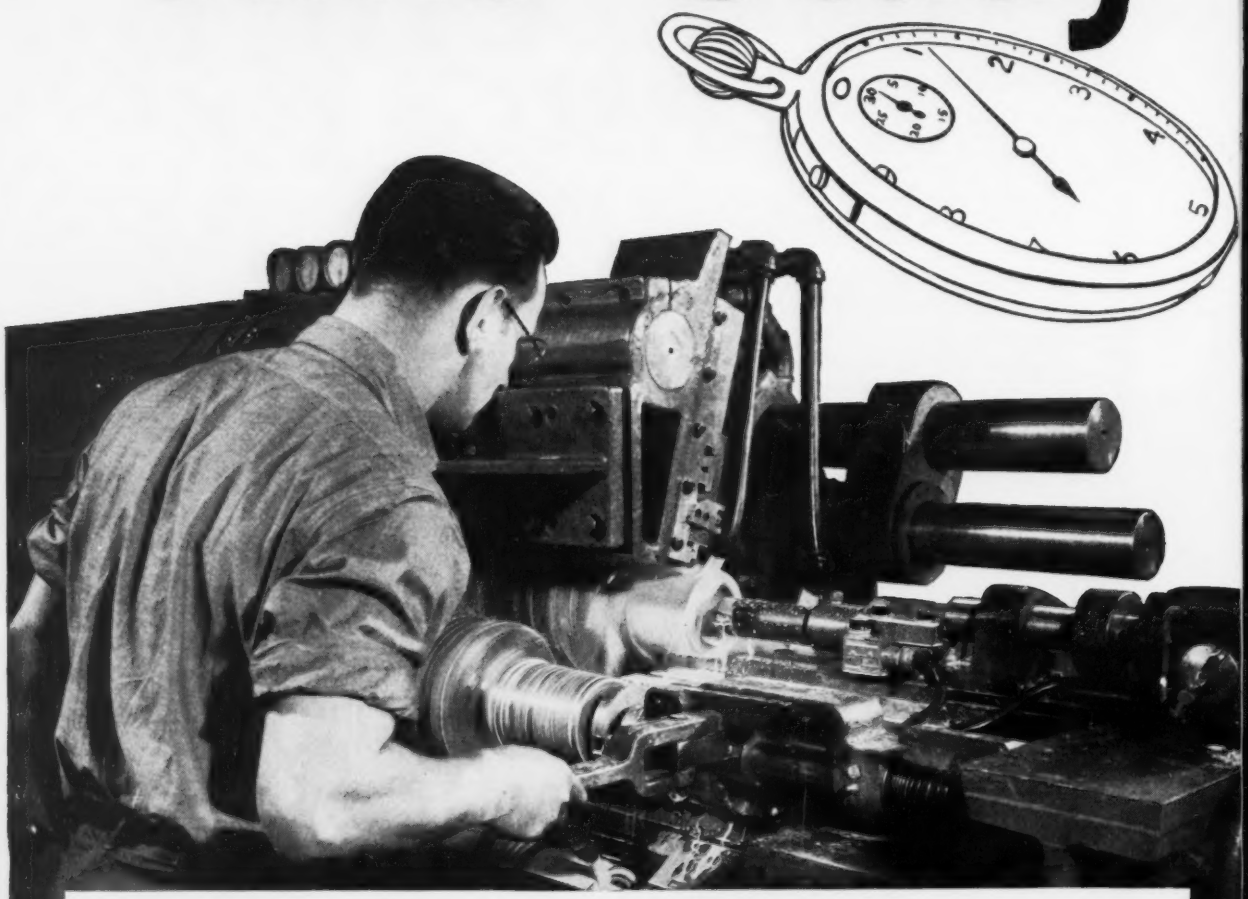
-214

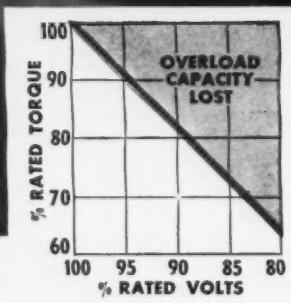
Kearney Products

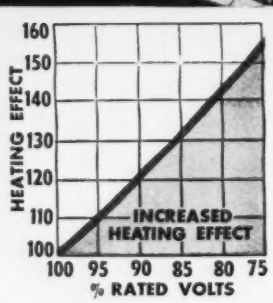
For Better Construction SAFER Maintenance!

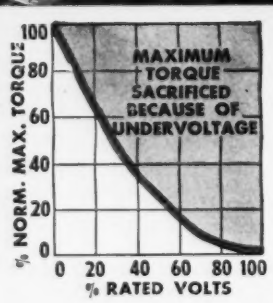
JAMES R. KEARNEY CORPORATION ST. LOUIS, MO. GUELPH, ONT.

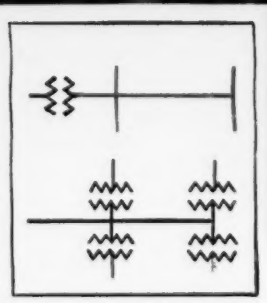
Time-Study











FULL PRODUCTION demands that rated voltage be maintained to all motors. Overload capacity, that extra push necessary for short intervals on many processes, falls off rapidly on undervoltage . . . falls approximately 10% for every 5% drop below rated voltage.

MOTORS BURN OUT quicker at undervoltage because of increased heating effect. Overload relays in the controls protecting your motors trip because of the extra current through them, open circuits to motors — cause machine down-time and production loss.

JOBS TAKE LONGER because torque and horsepower drop when voltage drops. Less torque means lighter cuts on lathes, shapers and other machine tools. More time must be spent to get the same job done. More overhead, more manhours must be figured into every job.

A MAJOR CAUSE of undervoltage is voltage drop in secondary feeders. Existing systems may not be adequate for new production schedules. Install A-C Substations at load centers to reduce line losses, cut feeder length, hold proper voltage, increase production.

Your Voltage

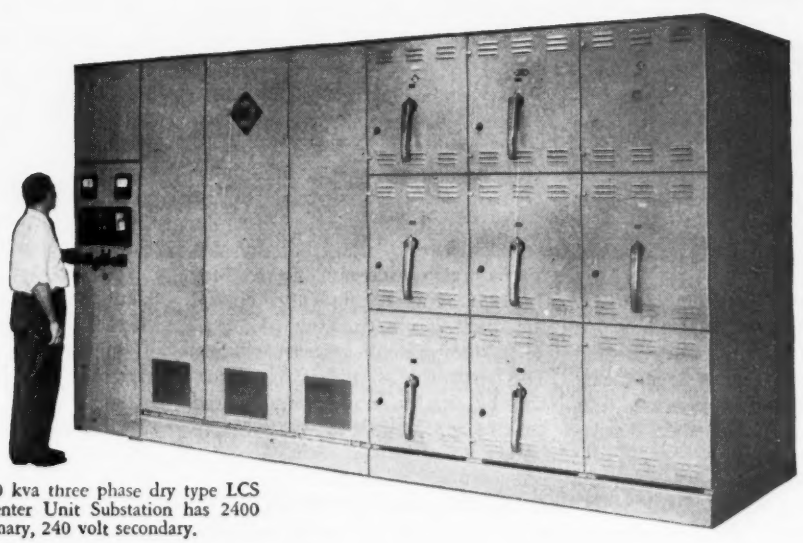
STOP WASTING MANHOURS on slow producing machines. Get the most from the production equipment in your plant by installing unit substations to correct undervoltage. No electrical equipment gives top performance *unless* it operates at rated voltage . . . and even well designed distribution systems may prove inadequate because of today's added loads and increased production schedules.

For example, if your squirrel-cage motors operate at 10% undervoltage, maximum torque available to start machinery is reduced 19% . . . heating effect within the motors is inceased 21% . . . overload capacity falls, efficiency drops.

Increase your output by eliminating production slow-downs resulting from overloaded motors . . . machine down-time due to tripped starters or circuit breakers. Install Allis-Chalmers LCS Unit Substations at load centers and eliminate excessive line drop by shortening low voltage cables. Allis-Chalmers LCS Load Center Unit Substations are neat, compact, easy to install, and provide protection to personnel.

You can count on the cooperation of experienced Allis-Chalmers substation engineers in working out your distribution system. Get in touch with your A-C representative, or write Allis-Chalmers, Milwaukee 1, Wisconsin. Ask for bulletins 11B6285A, 11B6325B and 11B6895. A-3371

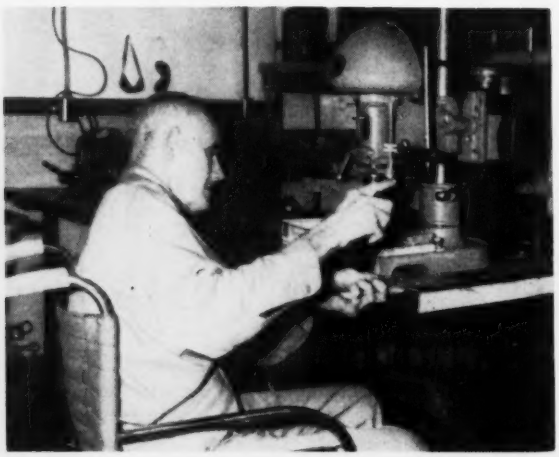
ALLIS-CHALMERS
LCS
LOAD CENTER
Unit Substation



This 750 kva three phase dry type LCS Load Center Unit Substation has 2400 volt primary, 240 volt secondary.

ALLIS-CHALMERS

A-C ALLIS-CHALMERS



Florida P&L Rehabilitates Men and Equipment

Lineman Ricard Rodriguez, left, who lost his arm in an accident, is cleaning electrical equipment. Joe Taylor, a 24-year employee of Florida Power & Light Co, is on the job in spite of a wheel chair. The company recently established a rehabilitation shop in Miami. Work is light but important to company operations and consists chiefly of cleaning and repairing switches and potheads and stamping substation number plates. The men also make up all 13-kv jumpers for FP&L. As part of the program, company furnishes transportation to doctor's offices and pays medical expenses. Employees may stay in the shop a day or a year—whatever time is needed until they are ready for their regular work. A couch and radio are provided for rest and relaxation.

Detroit Edison Wins OK for 'Fringe' Benefits

Detroit Edison Co has received Michigan Wage Stabilization Board approval to put into effect "fringe" benefits. Principally involved are members of Local 223, Utility Workers Union of America, CIO, numbering 3,800 hourly workers. The benefits at the request of Detroit Edison officials were extended to some 3,000 non-union office employees and 1,300 hourly rate operating workers.

Benefits are retroactive to Nov. 14 and include:

1. Meal allowances from 75¢ to $1.

2. Premium pay of 10¢ an hour for work performed on afternoon and evening shifts in some departments and 8¢ for afternoon shifts and 12¢ for evening shifts in other departments.

3. Employees assigned temporarily to jobs with higher pay will be allotted the increase rate if they work one full hour or more.

4. Employees with 25 or more years' service will receive an hourly pay raise if assigned to lower rated jobs because of injuries suffered at work.

5. Adoption of an automatic progression plan in certain production department classifications, bringing increases at once to 93 apprentices.

LABOR BRIEFS

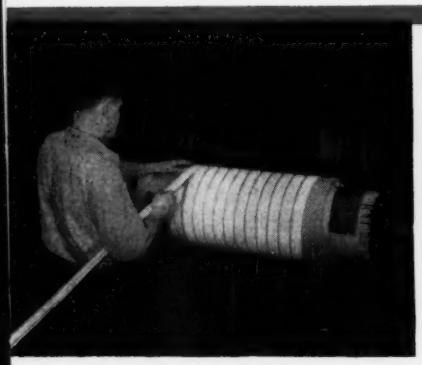
Pennsylvania Power & Light Co has settled with the independent union representing its employees for increases ranging from 5¢ to 9¢ an hour, averaging 6.6¢. The settlement, affecting 5,100 employees of PP&L, is retroactive to Dec. 1, 1952 and follows a previous increase effective May 19, 1952. Wages again will be opened for discussion after May 31, 1953 when the present contract expires. This settlement is subject to ratification by the union membership and must be approved by the Wage Stabilization Board.

Compensation levels of top executives on the average increased approximately 5% in the 1951-52 fiscal year compared to the previous year, according to the third annual report just released by the executive compensation service of the American Management Association, 330 West 42nd St., New York 36, N. Y. In contrast, gross average weekly earnings of production workers in manufacturing industries for the calendar year 1951 were more than 9% above their 1950 level, AMA has pointed out. This figure, taken from Bureau of Labor Statistics reports, does not include "fringe" benefits. The AMA figure, on the other hand, is for total compensation, including salaries, bonus payments, and contributions to retirement funds.

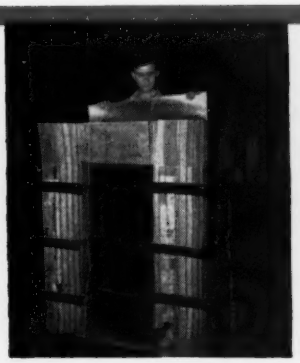
Southern California Edison Co has won a ruling from Superior Judge Roy L. Herndon that International Brotherhood of Electrical Workers, AFL, Local 47 did not give proper notice of 60 days on terminating the contract on Dec. 31.

The serious shortage of engineers will continue in 1953, T. A. Marshall, executive secretary of the Engineering Manpower Commission of Engineers Joint Council has said. He revealed that there is need for 40,000 new engineering graduates for industrial and governmental purposes without considering the armed forces or education. In 1953 and 1954, he declared, there will be 42,000 engineering graduates.

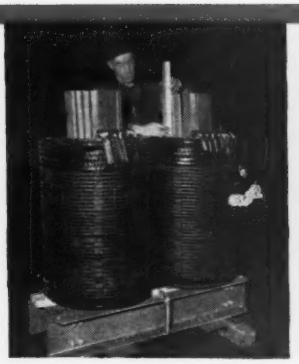
This is how *Kuhlman* craftsmanship assures you dependable transformers



1. The coils of Kuhlman power transformers are usually wound concentrically. Coils that are to carry heavy currents at low voltage are of the interleaved disc type. Above, a cylindrical LV core for a 1000 KVA transformer being wound with multiple wires transposed when necessary to maintain low stray losses.



2. Assembling the core for a 1000 KVA transformer. After the assembler has finished inserting the laminations, the core will be inverted to receive the coils. The laminations are made of cold-rolled oriented silicon steel which permits the flux path to follow the grain of the steel producing high permeability and low hysteresis.



3. Here the core has been inverted and assembled to the lower part of the core clamp. The coils, which have been immersed in a thermo-setting varnish and baked, have been slipped over the legs of the core. The assembler is bracing the core to prevent shifting and vibration.

4. After the core has been braced, the assembler inserts the necessary laminations on top to complete the core. After this, the remainder of the core clamp will be assembled and the core and coil assembly will be ready to be lowered into the tank.

5. The tank is made of heavy steel plate, electrically welded at the seams. Here you see the cooling tubes being welded on the outside of a tank to provide oil-tight and rust-proof joints.

6. In this picture, the welded joints of the cooling tubes are being tested for leaks. After these tubes are put on the tank, the entire tank is filled with kerosene and subjected to air pressure as a final check to determine if the tank is completely oil-tight.

7. Finally, the entire tank is shot-blasted and painted with a coat of rust-inhibitive primer and two coats of corrosion resistant paint. The tanks are then ready to receive the core and coil assembly.

8. Kuhlman transformers are engineered for long life and dependability. They are built from carefully selected materials according to sound principles of design and assembled with infinite care and patience by skilled craftsmen with years of experience at their job. Then each transformer is thoroughly inspected and tested for safe, efficient performance. When you install your next transformer, specify Kuhlman for transformers of outstanding quality — backed by nearly 60 years of electrical manufacturing experience. Write us today for the name of your nearest Kuhlman representative.

Kuhlman **ELECTRIC COMPANY, BAY CITY, MICHIGAN**
CRYSTAL SPRINGS, MISSISSIPPI

KUHLMAN K E ELECTRIC

EXPORT REPRESENTATIVES: *International Standard Electric Corporation,*
50 Church Street, 15th Floor, New York 4, New York. Cable Address: Microphone, N. Y.

Ohio PUC Undergoing Change

Governor recommends change in law dealing with property valuation. Commissioner prepares reorganization orders

Ohio legislature now in session is expected to consider proposals for far-reaching changes in the operations of the Ohio Public Utilities Commission.

Gov Frank J. Lausche, in a message to the legislature, recommended that the state law prescribing how utility property shall be valued for rate making purposes be amended so as to allow a reasonable return on the "fair value" of the utility property.

Reproduction Cost at Stake . . . The governor said Ohio is the only state in the nation that allows private utilities, in determining what rate they shall charge, to fix the valuation of their property solely and only on the basis of what it would cost to reproduce it new, less depreciation. "The rule is archaic, obsolete, and unjust," he declared.

He said, "It operates generally to the disadvantage of the consumer and, especially in those areas where utility companies have antiquated equipment, it induces those utilities to fall into a wakeless sleep pertaining to modernization because they realize that, even with their obsolete equipment under the Ohio law, they occupy a position on rates legally allowable that is nearly formidable as the enterprising and energetic utility."

"The rule in Ohio," he continued, "should provide that a utility company shall be allowed a reasonable return on the fair value of its property, which value is to be determined by a consideration of its original cost, reproduction cost new less depreciation, and such other testimony having a relevant relationship to the property."

A similar proposal was presented to to Ohio legislature four years ago, but was turned down. The governor urged that a law be enacted so as to provide a reasonable return based upon the fair value of the property of the particular utility.

Commissioner Makes Changes . . . Paralleling the operational changes suggested by the governor, Commissioner Ray O. Martin of the PUC said there would be a "constant cycle" of reorganization orders issued as new procedural steps are worked out.

He listed these aims for the commission:

1. To help the PUC function as nearly as possible along the business-like lines adopted by top industry.
2. To place more responsibility on staff members and encourage them to use more initiative in their work.
3. To weed out useless activities which have grown up over a number of years.

"Just because a certain thing has been done in a certain way for the past 20 years," the commissioner commented, "doesn't mean it should be done that way for the next 20."

Tax Write-Offs

FPC asks utilities for views on how to treat rapid amortization in respect to rates

Federal Power Commission is preparing to decide how it will treat rapid tax amortization in exercising its powers over electric utility rates and accounting.

Utilities have been asked to submit their written views on this problem to FPC by Feb. 27. Interested parties may also take part in oral argument before the commission March 11 by notifying the secretary of FPC in advance of the hearing.

Specific question presented by FPC is: What rules—if any—should be adopted relating to the treatment for accounting and rate-making purposes under the Federal Power and Natural Gas Acts of tax savings resulting from the allowance of accelerated amortization in income tax computation.

Program Authorized in '50 . . . The accelerated tax write-off program was authorized in the Defense Production Act of 1950 to step up expansion of defense production facilities. Certification of a project, such as a generating plant or transmission line, permits companies to amortize an authorized amount of the cost of a new facility by means of rapid-tax write-off over a five-year period, rather than over the normal life of project.

Electric companies under FPC jurisdiction have received certificates relating to a gross investment of $2.5 billion of which $1.2 billion is actually certified for rapid amortization.

FPC has not yet been faced with a rate case involving an electric utility in which rapid tax amortization was a factor. However, it has tentatively ruled in one gas pipeline case that tax savings resulting from fast write-offs shall be reflected in the gas rates. This would appear to minimize the advantage of rapid amortization to a utility. FPC took this action in the Texas Eastern Transmission case.

Attorneys for pipe line companies have recommended that any savings realized from rapid-tax write-offs be set aside in a special reserve account. This account would be used for the equalization of federal income taxes as between the first five years and subsequent years, which taxes are proportionately higher.

Salt River Rates Up 2%

Power rates of the Salt River Project Agricultural Improvement & Power District, Phoenix, Ariz., have been increased approximately 2% to compensate for increased costs of natural gas supplied the district by El Paso Natural Gas Co for generating purposes. The move follows a similar hike by Arizona Public Service Co which raised power rates 1.4% and gas rates 5.7% for the same reason.

FINANCIAL BRIEFS

U. S. District Court in Brooklyn has thrown out a suit by a stockholder of Long Island Lighting Co for $27.5 million based on 1950 consolidation of that firm with its operating subsidiaries. Court granted a motion to dismiss the action on the ground that it violates the court order approving the consolidation plan. Court said that the plaintiffs could bring such an action only in the consolidation proceedings.

Pennsylvania Power & Light Co will sell $20-$25 million of first mortgage bonds this year, Pres Charles E. Oakes

has revealed . . . **Indiana & Michigan Electric Co** will spend nearly $33 million for construction in 1953.

Private Placements—Hartford Electric Co has sold through Putnam & Co $15 million 3¼% debentures due Sept. 1, 1977 to institutions . . . Sierra Pacific Power Co has sold to four investors $1.5 million first mortgage 3¾% bonds due 1982.

New England Electric System has asked Securities and Exchange Commission approval to increase its authorized common stock from 8.5 million shares to 11.5 million shares and to provide in connection with preemptive offerings to stockholders that cash or full share rights may be issued in lieu of rights to fractional shares . . . **Southern Co** has scheduled its 1953 annual stockholders meeting on May 27 in the south for the first time. It will be held at the Martin Dam hydro plant of Alabama Power Co near Montgomery.

Because of a request by Ralph Purvis, one of the Kitsap Public Utility District's attorneys, who is serving in the state legislature, Kitsap County Judge H. G. Sutton has postponed until Feb. 20 a hearing on the case of the PUD's to buy the Puget Sound Power & Light Co properties. Judge Max Church of Clallom County will hear the case on that date as a visiting jurist.

Mississippi Power & Light Co will spend $23 million for construction in 1953, the highest in the company's history . . . Gulf Power Co plans to spend $30 million in the 1951-53 period. Company spins its first unit of 40,000 kw at its river junction plant.

Public utility common stocks have gone from an average yield of 6.0% in 1950 to 5.2% in January 1953, G. A. Saxton & Co, Inc, has revealed in a booklet just released on electric companies, gas companies, and electric and gas holding companies. For copy write Henry Trundle, vice president, 70 Pine St., New York 5.

Ohio Edison Co stockholders subscribed to 636,855 common shares of 479,846 shares offered to commonholders on a 1-for-10 basis at $35.25 a share. Of the total 452,398 shares were asked for directly.

Today in Utility Finance

YIELDS (%)

Quality	Bonds			Preferred Stocks			Common Stocks		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
DATE									
1953									
Jan. 22	**3.04**	**3.08**	**3.18**	**4.12**	**4.29**	**4.59**	**5.01**	**5.40**	**5.64**
Jan. 15	3.04	3.08	3.17	4.09	4.27	4.59	5.02	5.39	5.65
END OF QTR:									
4th 1952	2.99	3.03	3.14	4.06	4.22	4.59	4.98	5.33	5.62
3rd 1952	2.99	3.03	3.16	4.10	4.26	4.61	5.18	5.59	5.96
2nd 1952	2.95	3.00	3.09	4.05	4.31	4.60	5.38	5.85	6.42
1st 1952	2.95	2.99	3.13	4.11	4.29	4.66	5.35	6.03	6.47

Data: Reis & Chandler, Inc.

EARNINGS

Company	Period Months	Ended	Net Income 1952	Net Income 1951	Earnings Per Common Share 1952	Earnings Per Common Share 1951
Carolina Power & Light	12	Dec.*	$7,160,609	$6,230,308	$....	$....
Central Illinois Light	12	Dec.*	3,002,697	2,999,529	2.78(a)	2.78(a)
Iowa Electric Light & Power	12	Nov.	2,158,175	1,950,314	1.63	1.44
Mountain States Power	12	Nov.	1,601,578	1,400,363	1.14(b)	1.27(b)
San Diego Gas & Electric	12	Nov.	4,449,557	3,504,866	....	....
Southern Canada Power	3	Dec.	353,548	281,722	....	....

Notes—* Subject to the year-end audit. (a) Based on shares outstanding at the end of each period; and (b) Based on shares outstanding at end of 1952 and on average number of shares outstanding during 1951.

FINANCING

Company and Description	Amount of Offering (000)	Offering Price	Yield to Public
WEEK OF JANUARY 22-28			
Bonds			
Yazoo, Miss., electric revenues, 1953-1977	$1,700	various	1.30-3.00%
Iowa-Illinois Gas & Electric—1st mtg 3⅛% due 1983	8,000	$102.384	3.25
Debentures			
Province of Ontario, 3¼% due 1975	$50,000	$96.75	3.463%
Preferred Stock			
Iowa-Illinois Gas & Electric—60,000 sh $100 par 4.36%	$6,000	$102.125	4.27%
Northern Indiana Public Service—80,000 sh $100 par 4½%	8,000	100.00	4.50
SCHEDULE FOR FEBRUARY			
Bonds			**Bid Date**
Jacksonville, Fla., electric system	$18,000	.....	Feb. 3
Southwestern Public Service—1st mtg	12,000	.....	Feb. 4
Iowa Southern Utilities—1st mtg	7,000	.....	Feb. 17
Consolidated Edison Co of New York—1st mtg	40,000	.....	Feb. 17
Niagara Mohawk Power—1st mtg	25,000	.....	Feb. 18
Florida Power & Light—1st mtg	15,000	.....	April 7
Preferred Stock			
Southwestern Public Service—20,000 sh $100 par	2,000	.....	Feb. 4
Illinois Power—150,000 sh $50 par	7,500	.....	Feb. 4 (a)
Common Stock			
Southwestern Public Service—293,462 sh (being offered to commonholders on 1-for-12 basis, record Feb. 2 to expire Feb. 17; stockholders will be allowed oversubscription privileges)	.....	.....	.....
Louisville Gas & Electric—200,000 sh (being offered commonholders on 1-for-7 basis, record Jan. 29 to expire Feb. 17)	$7,300	$36.50	4.93% (c)
Niagara Mohawk Power—1,000,000 sh	.....	.....	Feb. 16
Illinois Power—250,000 sh	.....	.....	Feb. 5 (b)
UNSCHEDULED AND UNDER CONSIDERATION			
Bonds			
Central Maine Power—1st general mtg	$10,000	.....	.....
Rockland Light & Power—1st mtg	5,500	.....	.....
Wisconsin Public Service—1st mtg	7,500*	.....	.....
Monongahela Power—1st mtg	10,000	.....	.....
Arkansas Power & Light—1st mtg	18,000	.....	.....
Dallas Power & Light—1st mtg	9,000	.....	.....
Jersey Central Power & Light—1st mtg	9,000	.....	.....
Louisiana Power & Light—1st mtg	10,000	.....	.....
Metropolitan Edison—1st mtg	9,500	.....	.....
Mississippi Power & Light—1st mtg	12,000	.....	.....
Narragansett Electric—1st mtg	10,000	.....	.....
New Jersey Power & Light—1st mtg	4,000	.....	.....
New Orleans Public Service—1st mtg	6,000	.....	.....
Pennsylvania Electric—1st mtg	18,500	.....	.....
Texas Electric Service—1st mtg	9,000	.....	.....
Public Service Electric & Gas	50,000	.....	.....
Preferred Stock			
Rockland Light & Power	$5,500	.....	.....
Wisconsin Public Service	2,500*	.....	.....
Texas Electric Service	8,000	.....	April 13
Common Stock			
Gulf States Utilities	$6,000	.....	.....
Public Service Electric & Gas—750,000 sh	.....	.....	.....

Notes—* Estimated. (a) Merrill Lynch-First Boston Corp group, underwriters; (b) First Boston Corp-Merrill Lynch group, underwriters; and (c) Lehman Bros-Blyth & Co group, underwriters.

Liquid Cooling . . .

. . . process will be used in large generator to be manufactured by General Electric Co

The first large generator with liquid-cooled conductors in the history of the electrical industry will be manufactured by General Electric Co. Present method of cooling large generators is with hydrogen gas.

A new method of circulating a liquid through hollow conductors will be used in the stator of a turbine-generator set for the new Eastlake power plant of the Cleveland Electric Illuminating Co.

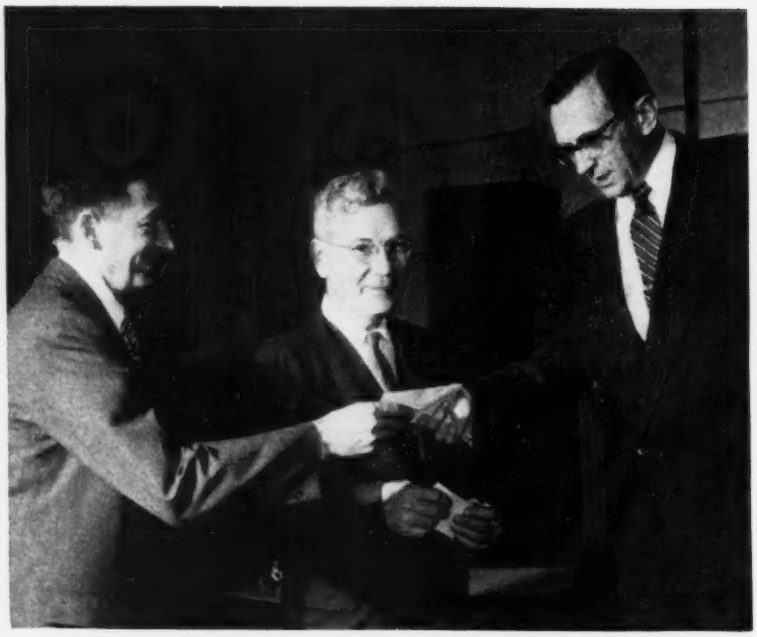
Rated at 208,000 kw . . . The unit will consist of a tandem-compound turbine rated at 208,000 kw and a generator rated at 260,000 kva. It is to be installed by the end of 1955.

In making the announcement, Glenn B. Warren, vice president of GE and general manager of the Turbine Division, said the liquid cooling method makes possible manufacture of generators having higher capability than present units without increasing physical dimensions of the units. The hydrogen gas method developed by GE is efficient for generators up to approximately 230,000 kva capability at 3,600 rpm.

GE is also supplying three conventional hydrogen-cooled units, each of 125,000 kw, for the Eastlake plant, which go into operation this summer.

Gets $18.5 Million Order

Westinghouse Electric Corp has received about $18.5 million worth of orders for electrical equipment to be used at Atomic Energy Commission installations at Oak Ridge, Tenn., and Paducah, Ky. The largest group of orders, valued at $7,261,850, is for a number of unit substations using air-cooled transformers for use at Paducah. Another order valued at about $5.7 million is for cubicle type switchgear for installation at Oak Ridge. Another $2,853,000 order calls for a number of synchronous condensers at Oak Ridge and Paducah. Still another order is for $2,612,000 worth of power transformers for Oak Ridge and Paducah.



Receiving Westinghouse Patent Award

Ambrose J. Petzinger (left) and Bernard E. Lenehan (center), two engineers of Westinghouse Electric Corp's Meter Division, are shown receiving a $5,000 patent award. The award was made for their joint invention of an improved low-cost electric meter to be used in measuring the electricity utilized by small industrial and commercial farms.

Presenting the award is John K. Hodnette (right), vice president in charge of industrial products. The ceremony took place in the division's engineering offices at Newark, N. J.

MANUFACTURING BRIEFS

General Radio Co's new manufacturing plant at West Concord, Mass., is now in full operation. Located on an 80-acre site, the three-story plant has an area of 72,000 sq ft. Headquarters are still at the company's Cambridge location, where research, laboratory, and manufacturing facilities continue. The new plant, which will employ about 150 persons, will produce Variac and other instrument assemblies.

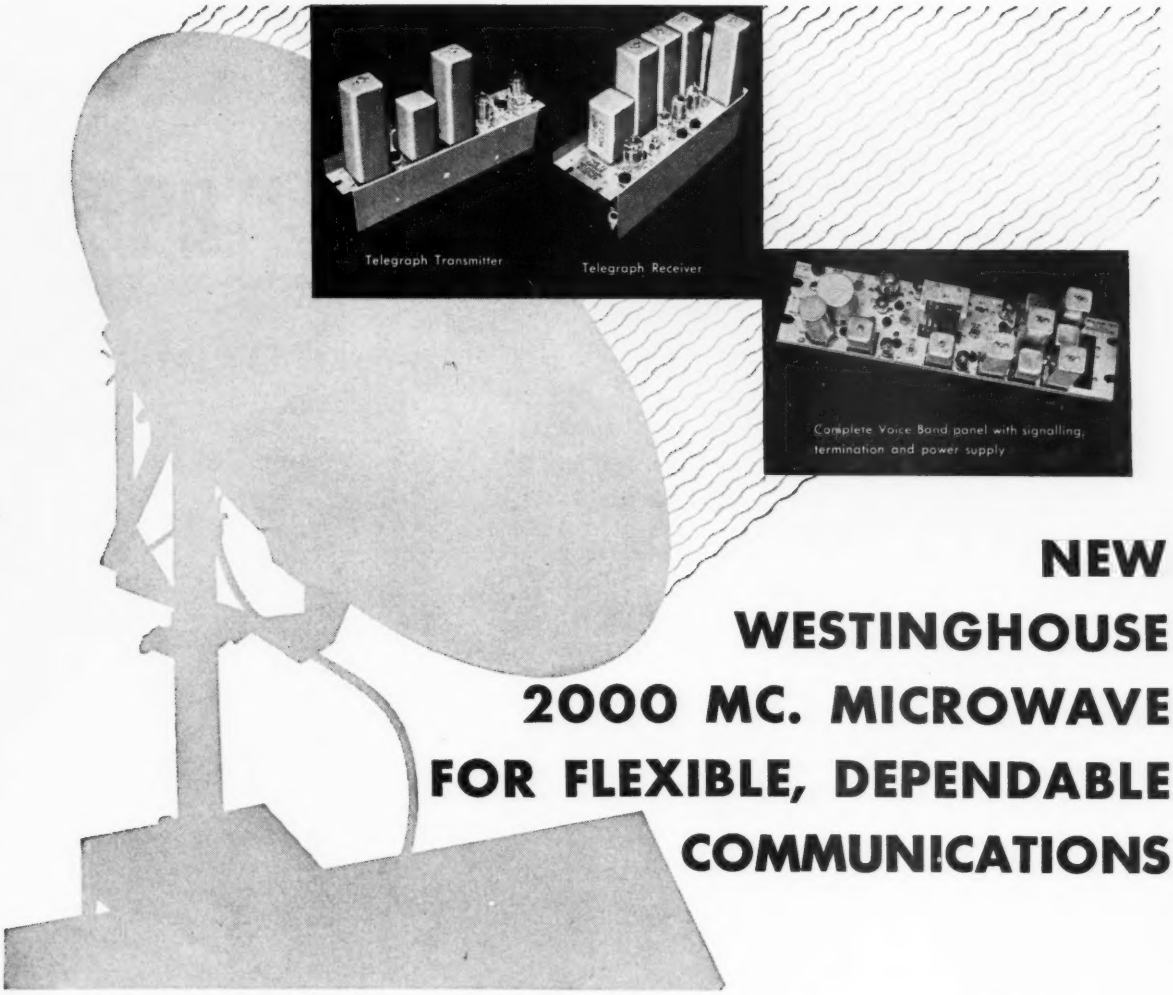
The House has passed and sent to the Senate a bill to continue until June 30, 1954, suspension of the 2¢ per lb import duty on copper. Prompt Senate passage is expected before present suspension ends Feb. 15.

Motorola, Inc, has announced the organization of a wholly owned subsidiary corporation, Motorola Communication & Electronics, Inc. The new company will distribute the following products manufactured by the Communications and Electronics Division of the parent corporation: Power line carrier, two-way radio systems, multi-channel microwave relay systems, and supervisory and industrial control equipment.

Philco Corp plans to build a $4-million plant at Connersville, Ind., to increase its refrigerator production by 50% and double its home freezer building capacity. The new plant, which will have 340,000 sq ft of floor space, is scheduled to go into operation before the end of the year.

Ilg Electric Ventilating Co, Chicago, plans an addition to its present plant. Estimated to cost about $500,000, the new addition will have approximately 35,000 sq ft. It will provide a new receiving dock for Ilg, which manu-

(*Continued on page* 48)



NEW WESTINGHOUSE 2000 MC. MICROWAVE FOR FLEXIBLE, DEPENDABLE COMMUNICATIONS

Industrial demand plus Westinghouse experience have teamed up to produce the latest development in microwave communication equipment — the new Type FR-FJ Microwave System.

The Type FR Microwave Radio is designed specifically for operation with the Type FJ Multiplexing equipment. The multiplexing equipment, of the Frequency Division type, provides maximum flexibility and dependability in accommodating many varied communications functions.

The Multiplexing equipment features a self-contained Voice Band Panel which incorporates multiplexing transmitter, receiver, power supply, signalling and telephone termination circuitry on a single panel. Up to 30 duplex voice channels can be provided over a single radio link.

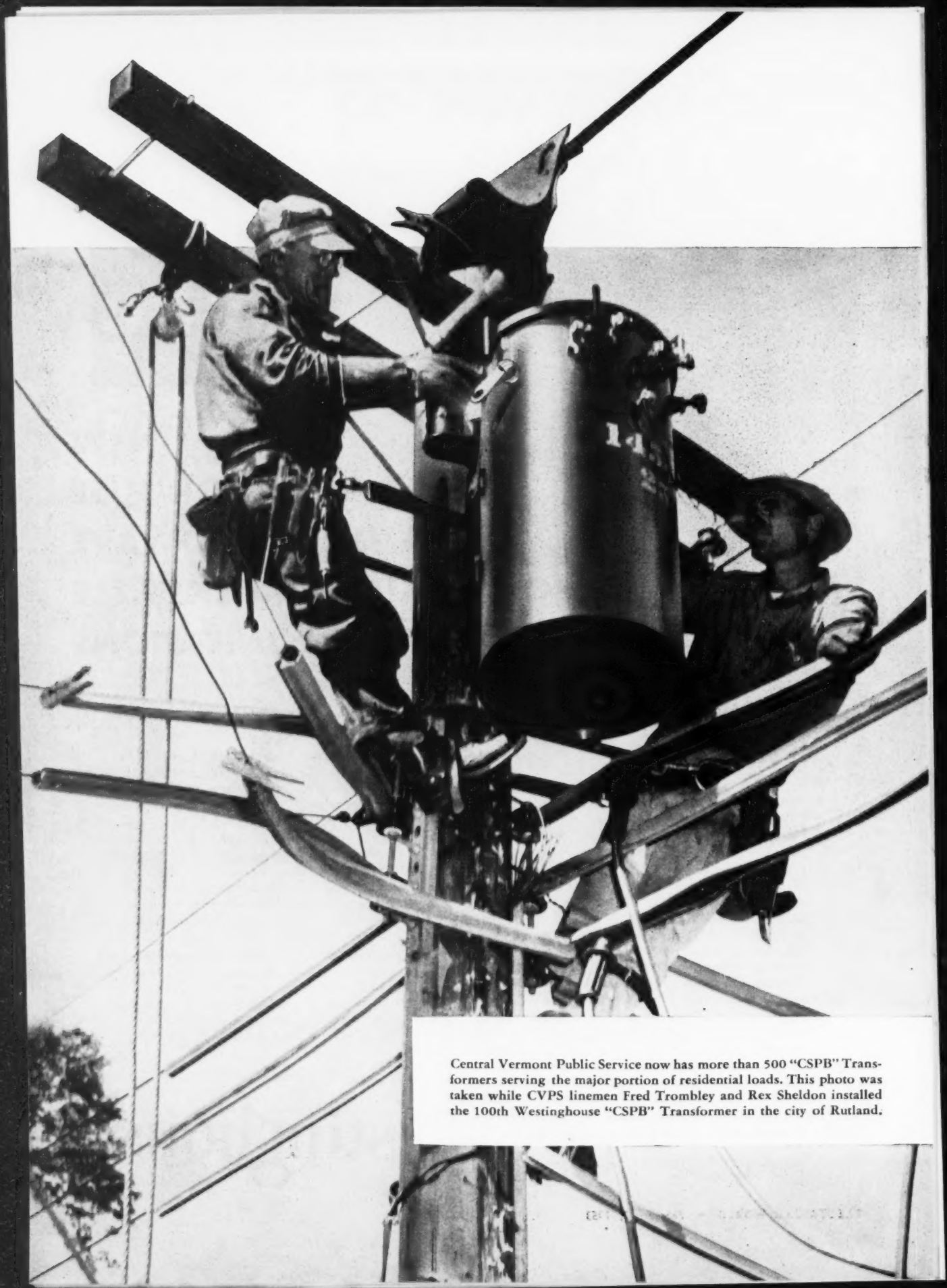
The Type FJ Telegraph equipment is adaptable to all types of telemetering, supervisory control, teletype and other telegraphic functions. It operates directly into the radio equipment, rather than through the Voice Band Panel. The telegraph transmitters and receivers are readily changeable from one type of operation to another.

Double sideband modulation and crystal control are used for simplicity and ease of maintenance in the multiplexing units. These units are connected directly to the radio equipment, no intermediate equipment being required. The radio equipment only is common to all channels and is conservatively rated for long life. It has adequate reserve power, assuring maximum transmission reliability.

Before you decide upon any communications medium, it will pay you to examine the new Westinghouse Type FR-FJ Microwave System. For full information call your Westinghouse representative or write: Westinghouse Electric Corporation, Carrier-Microwave Section, 2519 Wilkens Avenue, Baltimore 3, Maryland.

YOU CAN BE SURE...IF IT'S Westinghouse

J-02259



Central Vermont Public Service now has more than 500 "CSPB" Transformers serving the major portion of residential loads. This photo was taken while CVPS linemen Fred Trombley and Rex Sheldon installed the 100th Westinghouse "CSPB" Transformer in the city of Rutland.

"CSPB®" Transformers

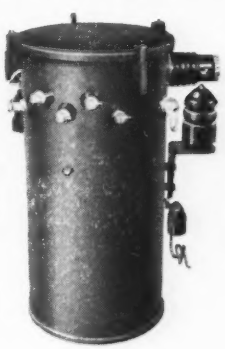
take the heat off Rutland's load problem

"Adverse operating conditions," said Central Vermont Public Service. Heavy loading of radial distribution made it necessary to increase capacity at once since future growth was certain.

They provided immediate capacity by banking with "CSPB" Transformers. Then by simply changing to higher ratings, or adding more transformers, future growth could be handled economically.

For years, tying secondaries together so that transformers share the load has been recognized as the ultimate in transformer flexibility. But only with "CSPB" Transformers, first introduced by Westinghouse in 1946, could Central Vermont Public Service eliminate the danger that sudden overloads or faults might cascade onto other transformers, and blank out the entire system. Here's why:

Two secondary breakers with warning signals function in each "CSPB" Transformer; one to serve each section of the secondaries. The secondaries are tied together only through the transformer. Therefore, "CSPB" Transformers first provide signal-light indication of a section operating at dangerous overload; then they completely isolate severely overloaded or faulted sections . . . if that should become necessary to maintain service on the balance of the system. Line crews are never forced to become "electrical sleuths" to locate the area with the fault.



Your Westinghouse representative will be glad to tell you about the other advantages of "CSPB" Transformers; or write direct for Booklet B-4310A, "Completely Self-Protecting . . . for Banked Secondaries." Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

J-70660

YOU CAN BE SURE...IF IT'S Westinghouse

(*Continued from page* 44)

factures air-conditioning apparatus, unit heaters and coolers, and self-cooled motor propeller fans.

Stackpole Carbon Co, Inc, St. Mary's, Pa., has purchased the Phillips-Jones Co plant located at Kane, Pa. Stackpole plans to use the 55,000 sq ft facility to manufacture heavy steel equipment.

Refined Copper Stocks Decrease in December

Stocks of refined copper held in the United States by members of the Copper Institute, Inc, at the end of December totaled 58,858 tons, a decrease of 10,379 tons below the 69,237 tons held on Nov. 30.

During December deliveries to domestic fabricators increased to 143,088 tons compared with deliveries of 125,338 in November. Refined production also increased to 113,965 tons from 100,075.

Outside the United States refined stocks amounted to 130,103 tons on Dec. 31, a decrease of 1,472 tons below the 131,575 tons on Nov. 30. December deliveries increased to 84,216 tons from 71,960 in November and refined production was 100,374 tons compared with 87,209.

SALES ASSIGNMENTS

COMPANY STAFFS

BullDog Electric Products Co, Detroit, has added David W. Frazier to its Cleveland sales staff, where he will assist District Manager Paul E. Morgan. Richard P. Beaubien has rejoined the Detroit sales staff of BullDog. Beaubien, who will serve under District Manager W. D. Hunt, had been a BullDog field engineer in Detroit for five years when he left the firm to become a manufactuer's agent.

Copperweld Steel Co's Wire and Cable Division has appointed J. Gordon Cavanagh as sales engineer covering the lower peninsula of Michigan and the entire state of Indiana. Cavanagh, formerly with Iowa Power & Light Co, will make his headquarters in Detroit as did Donald T. Jones, his predecessor. Temporarily on leave of absence from Copperweld, Jones is now serving with the Navy.

General Electric Co's Small Appliance Division has appointed E. T. Carvill, formerly Southeast district manager, to the post of North Central district manager. He succeeds D. H. Edwards, who has been assigned to division headquarters at Bridgeport, Conn., as a special sales representative. W. J. Pfeif, formerly manager of GE's Fair Trade Section, replaces Carvill as Southeastern district manager.

MEETINGS CALENDAR

***Edison Electric Institute**
Prime Movers Committee, Mayflower Hotel, Akron, Ohio, Feb. 2-3; Commercial Lighting Committee, Statler Hotel, Boston, Feb. 4-5; Transmission-Distribution Committee, Shoreham Hotel, Washington, D. C., Feb. 12-13; Electrical Equipment Committee, Jefferson Hotel, St. Louis, Mo., Feb. 16-17; Industrial Power-Heating Section, Schenley Hotel, Pittsburgh, Feb. 16-17; 19th Annual Sales Conference, Edgewater Beach Hotel, Chicago, Mar. 30-April 2; Accident Prevention Committee, Edgewater Beach Hotel, Chicago, May 4-5; Transmission-Distribution Committee, Edgewater Beach Hotel, Chicago, May 5-6; Electrical Equipment Committee, Sir Walter Hotel, Raleigh, N. C., May 11-12; 21st Annual Convention, Atlantic City, N. J., June 1-4.

Public Utilities Advertising Association
Region 8, Mayo Hotel, Tulsa, Okla., Feb. 2-3; Region 1, Parker House Hotel, Boston, Mar. 4-5; Region 5, Jefferson Hotel, Richmond, Va., Mar. 12-13; National Convention, Chase Hotel, St. Louis, May 7-8.

National Association of Corrosion Engineers
Short Course in Corrosion in cooperation with University of California, Berkeley, Feb. 2-6; 1953 Conference-Exhibition, Chicago, March 16-20.

Missouri Valley Electric Association
Industrial-Commercial Sales Conference, President Hotel, Kansas City, Mo., Feb. 5-6; Engineering Conference, President Hotel, Kansas City, Mo., April 8-10.

Pennsylvania Electric Association
Joint Meeting of Electrical Equipment-Relay Committees, Roosevelt Hotel, Pittsburgh, Feb. 5-6; Hydraulic Power Committee, William Penn Hotel, Pittsburgh, Feb. 5-6; Transmission-Distribution Committee, William Penn Hotel, Pittsburgh, Feb. 12-13; Systems Operation Committee, Hotel Brunswick, Lancaster, Pa., Feb. 19-20; Prime Movers Committee, Benjamin Franklin Hotel, Philadelphia, Feb. 26-27.

***Public Information Program**
West North Central Regional Meeting, Winona, Minn., Feb. 5.

Canadian Electrical Association
Following Western Zone Division Meetings will be held at Palliser Hotel, Calgary, Alta.: Engineering, Feb. 23-25; General Division, Feb. 25-26; Sales Division, Feb. 26-27; Annual Convention, Manoir Richelieu, Murray Bay, Que., June 25-27.

National Adequate Wiring Conference
La Salle Hotel, Chicago, Feb. 26-27.

Southern Safety Conference-Exposition
Hotel Atlanta Biltmore, Atlanta, Ga., March 1-3.

Pacific Coast Electrical Association
Engineering-Operating Section Conference, Long Beach, Calif., March 5-6; Administrative Services Section Conference, Phoenix, Ariz., April 8-9; Annual Convention, Hoberg's, Lake County, Calif., May 13-15.

***North Central Electric Association**
Electrical Industries Meet, Hotel Nicollet, Minneapolis, March 8-11. Accounting Conference, Dyckman Hotel, Minneapolis, Minn., March 23-24; Accident Prevention Committee, Dyckman Hotel, Minneapolis, Minn., April 21; Distribution-Equipment Engineering Meeting, Dyckman Hotel, Minneapolis, Minn., April 22; South Dakota All-Electrical Industry Meeting, Ward Hotel, Aberdeen, S. D., April 24-25.

North Central Electrical Industries
1953 Electrical Industry Convention, Hotel Nicollet, Minneapolis, March 8-11.

National Association of Purchasing Agents
Public Utility Buyers Group, Hotel Roosevelt, New Orleans, March 9-10; Annual Meeting, Statler Hotel, Los Angeles, May 24-27.

National Electrical Manufacturers Association
Winter Meeting, Edgewater Beach Hotel, Chicago, March 9-12; Annual Meeting, Nov. 9-12.

Illuminating Engineering Society
Canadian Regional Conference, Chateau Laurier, Ottawa, Ont., March 23-24; Southwestern Regional Meeting, Hotel Baker, Dallas, Tex., April 12-14.

A&M College of Texas
Conference for Protective Relay Engineers, Dept. of Electrical Engineering, College Station, Tex., March 23-25.

Southeastern Electric Exchange
20th Annual Conference, Boca Raton Hotel, Boca Raton, Fla., March 23-25; Engineering-Operation Section, Edgewater Gulf Hotel, Edgewater Park, Miss., April 16-17; Industrial Power Sales Conference, Fort Sumter Hotel, Charleston, S. C., May 21-22.

Institute of Radio Engineers
National Convention-Exhibit, Waldorf-Astoria Hotel and Grand Central Palace, New York, March 23-26.

Oklahoma Utilities Association Convention,
Tulsa Hotel, Tulsa, March 26-27.

Northwest Electric Light & Power Association
Engineering-Operation Section, Multnomah Hotel, Portland, Ore., Apr. 8-10; Business Development Section, Davenport Hotel, Spokane, Wash., May 4-6.

Northwest Public Power Association
Engineering-Operations Section, Osbourn Hotel, Eugene, Ore., April 16-17; Annual Convention, Ridpath Hotel, Spokane, Wash., May 6-8; Accounting Section, Monticello Hotel, Longview, Wash., Sept. 17-18.

Maryland Utilities Association
Annual Business Conference, Lord Baltimore Hotel, Baltimore, April 17; Fall Conference, Cavalier Hotel, Virginia Beach, Va., Sept. 18-19.

Electric-Gas Utility Accountants
National Conference, Sherman Hotel, Chicago, April 20-22.

American Institute of Electrical Engineers
Southern District Meeting, Louisville, Ky., April 22-24; Northeastern District Meeting, Copley Plaza Hotel, Boston, April 29-May 1; Summer General Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 15-19; Pacific General Meeting, Hotel Vancouver, Vancouver, B. C., Sept. 1-4.

Rocky Mountain Electrical League
Annual Spring Conference, Shirley Savoy Hotel, Denver, Colo., April 26-28.

Chicago Electrical Industry Show
Sponsored by Electric Association and Electrical Maintenance Engineers of Chicago, Conrad Hilton Hotel, Chicago, May 11-14.

Third International Congress On Electro-Thermics
Paris, France, May 18-23.

Electrical Manufacturers' Representatives Association of Michigan, Inc.
1953 Electrical Exhibition, State Fair Grounds, Exhibition Bldg., Detroit, May 19-22.

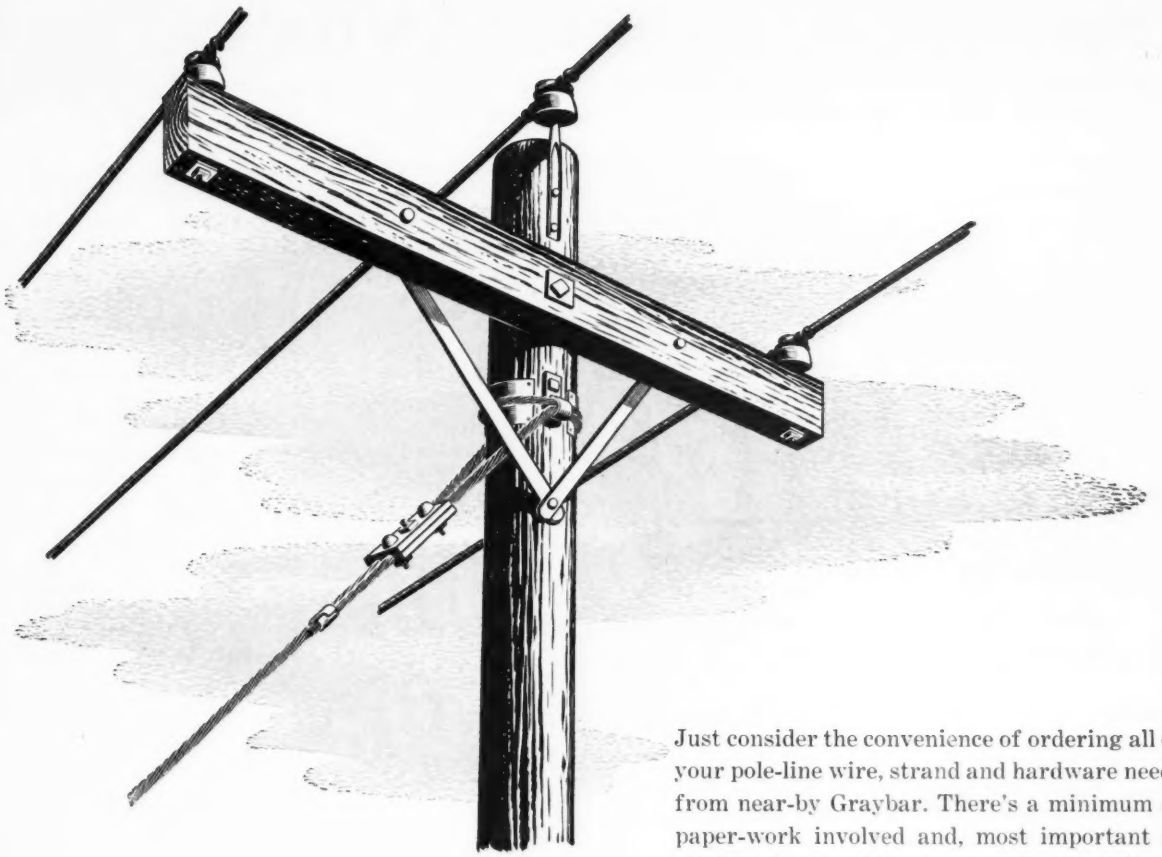
National Association of Electrical Distributors
45th Annual Convention, Conrad Hilton Hotel, Chicago, Week of May 24.

American Welding Society
National Spring Technical Meeting, Shamrock Hotel, Houston, Tex., June 16-19.

American Society for Testing Materials
Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 29-July 3.

Instrument Society of America
8th National Instrument Exhibit, Sherman Hotel, Chicago, Sept. 21-25.

*** Addition this week.**



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Graybar thoroughly understands the needs of the nation's power companies . . . can furnish supplies and materials "from the bottom of the hole to the top of the pole." Graybar Outside Construction Specialists are always ready to help you plan or carry out any project.

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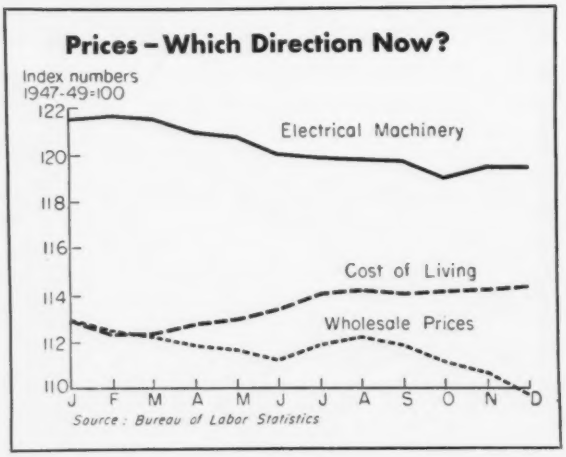


More Inflation in 1953?

Signs of price rises, demands for wage increases cause speculation on economic outlook

Recent economic developments have revived talk of further inflation. No one expects prices to go up very rapidly, even if all price controls are removed this spring. But economists are beginning to wonder if the outlook for 1953—relatively stable or even falling prices—should not be revised.

Inflationary pressures have been mild for more than a year. (Chart) The cost of living rose just slightly more than 1% in 1952, while many industrial and commodity prices declined. The index of all commodity prices has, in fact, been falling for most of the past two years. Some prices—like lead, zinc, and rubber—broke sharply in '52.

Many of the same factors that held prices down last year will be operating again in 1953, barring unforeseen international upheaval. Most shortages of industrial commodities disappeared in the past twelve months; most shortages that still exist will be filled before the end of 1953. Copper, aluminum, and most kinds of steel are already easy to get; by mid-year they will be plentiful.

Consumer Goods Plentiful . . . Shortages of consumer goods have just about ceased to exist. Detroit still cannot make quite so many automobiles as it would like, but other goods are plentiful. And consumers have contributed to the decline in inflationary pressure by saving their money in large amounts; personal savings are estimated at fully 8% of income after taxes in 1952.

In the first half of 1953, some industrial prices will rise to take account of increased costs, and some others like copper will also go up if controls are removed.

Excess industrial capacity will become a substantial problem in the second half of 1953. With industrial production expected to decline below the level of the first half year, some drop in industrial and consumer prices seems in order. Basic farm and commodity price indexes are expected to continue their slow drop through 1953.

But recently there have been some signs that more price increases are coming up. The January rises in nickel and aluminum were more or less expected. But there is talk now of increasing prices for electric appliances and household goods like carpets, and some prices have already gone up.

Furthermore, labor is showing increasing signs of an intent to make this a big year for wage increases. If business stays good through most of the year, industry may be encouraged to meet labor's wage demands and pass the increased cost on to the public in higher prices. This could lead, at least temporarily, to a greater increase in industrial prices.

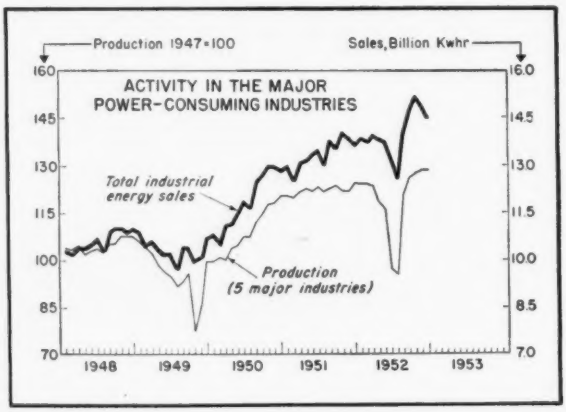
Business Confidence High . . . Added to these signs is the rash of business confidence that has appeared since the election of President Eisenhower. Confidence does not necessarily change the basic course of the economy, of course. But it could lead businessmen to think they can sell their product at higher prices.

Nevertheless, there are reasons for thinking that the price outlook has not changed significantly. The basic factors of supply and demand still argue for small price increases now and stable or lower prices later in the year.

It still appears likely that industrial production will be lower in the second half than in the first half of the year. It is extremely high now—well over 230 in the Federal Reserve Board index. But it may get down below 220 by the end of the year. That would put some downward pressure on the price level.

Expected Republican policy for managing the public debt (EW, Jan. 19, p 50) would tend to bring a higher level of interest charges. And higher interest rates could tighten up on private borrowing and buying, help bring a lower price level.

These factors, taken together, would indicate that previous price expectations are still reasonable.



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They are designed and built to withstand severe operating conditions and excessive load demands efficiently and without interrupting service. This is true because Moloney incorporates these superior design features in all of its products.

1. Higher factor of safety

Liberal use of insulating materials and coil cooling ducts makes possible greater performance dependability under overload conditions for a longer time. Greater mechanical strength permits them to withstand severe overload conditions without damage or mechanical distortion.

2. Improved short-time overload capacity

Distribution transformers, during peak load periods, may carry loads greatly in excess of rated capacity. The lower winding temperature gradient of Moloney Transformers makes it possible for them to carry severe overloads without seriously affecting their operating life.

3. Surge-proved core-and-coil design

All Moloney transformers are of surge-proved core-and-coil design tested on our 3,600,000 volt surge generator. Periodic surge-testing of standard designs assures continuous quality control. With Moloney Distribution Transformers you are sure of high resistance to the effects of lightning surges.

ME52-29

Illustrated at left: Moloney Distribution Transformer rated 500 Kva, single-phase, 60 cycles, high voltage 7200 volts, low voltage 240x480 volts.

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Regulator Record

Date_____
Voltage Level _____ Volts
Voltage Band _____ Volts
Resistance Comp _____ Volts
Reactance Comp _____ Volts
Drag Pointers
Raise _____ Lower _____
Oil Tested _____ KV (Date _____)

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